

AD610381

77 65 - 61076

The Institute of Contemporary Russian Studies

Fordham University
Bronx, N. Y. 10458

Series III

Selected Abstracts

from

Soviet Biomedical Journals

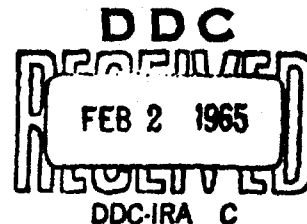
No. 1

Prepared by

Dr. Robert Pollitzer

COPY	2	OF	4	copy
HARD COPY				\$. 4 . 00
MICROFICHE				\$. 0 75

103P



Contract No.

DA 18-108-405-CML-867 (A)

October 1964

Best Available Copy

ARCHIVE COPY

ABBREVIATIONS USED IN "SELECTED ABSTRACTS" - Series III, No. 1

Biul. eksp. biol.	Arkhiv biologicheskikh nauk
Dokl. Akad. Nauk SSR	Doklady Akademii Nauk SSR
Gig. i san.	Gigiena i sanitariia
Med. parazitolog.	Meditsinskaia parazitologiya i parazitarnye bolezni
Probl. zool. issled. v Sibiri	Problemy zoologicheskikh issle- dovaniy v Sibiri
Sov. zdravookhraneniye	Sovetskoe zdravookhraneniye
Vop. virusol.	Voprosy virusologii

Institutions

AMS	Academy of Medical Sciences
ATP	Advanced Training of Physicians
IEM	Institute of Epidemiology and Microbiology
MH	Ministry of (Public) Health
MI	Medical Institute
RSFSR	Russian Soviet Federated Socialist Republic
SR	Scientific Research
USSR	Union of Soviet Socialist Republics

AVAILABILITY NOTICE

This material is a direct translation and/or abstract of Russian literature obtained from open sources and is releasable to the general public. Qualified requesters may obtain copies of this document from DDC. Non-DOD agencies may purchase this publication from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

1. Zhmaeva, Z. M. et al., Blood-sucking ticks - the carriers of R. burneti in the different regions of the USSR. Zhurnal mikrobiologii epidemiologii i immunologii (1964) 5: 28-33. (From the Gamaleia IEM, AMS, USSR.)

The conclusions to this article were that

1. Natural Q-fever foci have been detected in the south-eastern part of the Kara-Kums (a desert region in Central Asia), the steppes of North Kazakhstan, in the taiga of the Altai Krai and the taiga forest situated in the southern part of the Kirov Oblast.

2. The Q-fever foci in the USSR fall into three categories:

- (a) Desert foci, where the infection is maintained by 17 species of Ixodoidea and gamasides and 9 species of vertebrates;
- (b) Steppe foci, where 4 species of ixodes ticks, particularly D. marginatus, and 15 vertebrate species have been found involved; and
- (c) Forest foci, where limited numbers of tick species (particularly Ixodes persulcatus) and vertebrates ensure the circulation of R. burneti.

A study of this well documented article in the original or in a translation is indispensable for those interested in Q-fever.

2. Bogachik, L. I. et al., A contribution to the problem of paraxysmal rickettsiosis in the Vinnitsa Oblast. Zh. mikrobiol. (1964) 5: 61-63. (From the Sanitary-Epidemiological Station of the Vinnitsa Oblast and the Kiev IEM.)

As described in this article, in 1945 an outbreak of an acute febrile disease was reported in one of the raions of the Vinnitsa Oblast and sporadic attacks of the same nature continued to occur until 1947. It was established that this disease was caused by a particular species of rickettsiae developing in the intestinal tract of Ixodes ricinus, the bite of which was responsible for the infections in man. Clinical and epidemiological investigations as well as an examination of 300 Ixodes ricinus ticks collected in 1959 failed to furnish evidence for a continued existence of this infection.

Selected Abstracts-III/2

3. Skliarov, V. IA., A contribution to the problem of the distribution of anthrax in the Stavropol Krai.
Zh. mikrobiol. (1964) 5:138-141.
(From the SR Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol.)

Though, as the authors summarized, the incidence of anthrax in the Stavropol Krai decreased considerably during the last 16 years, sporadic attacks of the disease still occur in animals and in man.

79.9% of the attacks in man took place among persons working in the cattle-breeding industry, the veterinary personnel and among inhabitants of rural areas who privately owned cattle.

Agricultural animals formed the source of the human infections in 66.8%, the meat, skins and wool of diseased animals or of such succumbing to the infection serving as sources of the infection.

The disease occurred mainly among the adult population, 93% of the patients being older than 20 years.

74% of the attacks occurred during the period from June to September.

(From a table inserted in the text it can be gathered that the case-incidence of anthrax during the period from 1958 to 1961 was 39 as against 480 from 1946 to 1957.)

4. Rubtsov, I. V., A contribution to the history of the study of anthrax in Siberia.
Zh. mikrobiol. (1964) 5:152-154.
(From the Department of Infectious Diseases of the Order of Lenin First Moscow Sechenov MI.)
5. Tararin, R. A., A sketch of the history of the Soviet military epidemiology during World War II.
Zh. mikrobiol. (1964) 5:149-152.
(From the Order of Lenin Kirov Military Medical Academy.)
6. Editorial: Problems of immunology dealt with at the 14th conference of microbiologists, epidemiologists and infectionists. Zh. mikrobiol. (1964) 5: 3-6.

7. Zdrodovskii, P. F., Current data on the formation of protective antibodies, its regulation and unspecific stimulation. Zh. mikrobiol. (1964) 5: 6-14.

These four articles can be quoted by title only.

8. Tarasevich, I. V. et al., A natural focus of Tsutsugamushi fever. Zh. mikrobiol. (1964) 5: 19-24.
(From the Gamaleia IEM, AMS, USSR and the Vladivostok IEM.)

This well documented article describes the detection of a natural focus of Tsutsugamushi fever in a raion of the Primor'e situated on the North Korean border.

9. Fetisova, I. A., Pathogenic microflora of the Kazakhstan rodents. Zh. mikrobiol. (1964) 5: 58-61.
(From the Aralmorsk Anti-Plague Station.)

The author reports on the isolation of six erysipeloid strains and of four salmonella cultures from Kazakhstan rodents.

10. Tumarkov, R. I., Use of the phenomenon of bacterial antagonism for the acceleration of the death of pathogenic microorganisms in the soil. Zh. mikrobiol. (1964) 5: 146.
(From the Gamaleia IEM, AMS, USSR.)

This brief note reporting upon experiments with Escherichia coli does not lend itself to a brief review.

11. Belikova-Aldakova, V. D., Review of the book Zanosnye vspyshki natural'noi ospy. (Imported Smallpox Outbreaks.) Medgiz, 1962, 115 pp.

The author of this book deals with the incidence of smallpox and with the outbreaks of this disease due to importation of the infection on a worldwide scale. However, he pays particular attention to the 1959-1960 outbreak in Moscow, to which repeated reference has been made in these reviews.

12. Tareev, E. M. et al., Non-specific (allergic) reactions to smallpox vaccine. Vrachebnoe delo (1964) 5:121-126.
(From the Therapeutic Clinic of the Sanitary-Hygienic Faculty of the Order of Lenin First Moscow Sechenov MI.)

Selected Abstracts-III/4

This article which records the clinical history and the pathological findings in two persons who succumbed to reactions developing after re-vaccination against smallpox, cannot be briefly analysed.

13. Suchkov, B. P., Ozonization of water infected with typhoid bacilli. Vrachebnoe delo (1964) 5:110-115.
(From the Department of Communal Hygiene of the Kiev MI.)
14. Brochinskii, K. K., Ozone disinfection of drinking water. Vrachebnoe delo (1964) 5:115-117.
(From the Sanitary-Epidemiological Station of the Kiev Oblast and the Department of Communal Hygiene of the Kiev Oblast.)

These two articles can be quoted by title only.

15. Vasil'eva, O. A., The influence of antibiotics on the experimental vaccinal immunity against tick-borne encephalitis. Antibiotiki 9 (1964) 5:431-433.
(From the Tomsk SR Vaccine and Serum Institute.)

Experimenting with white mice the author found that the administration of penicillin and of streptomycin in therapeutic doses somewhat lowered the resistance of the test animals against the virus of tick-borne encephalitis. Likewise the use of these antibiotics during the various stages of the immunogenesis against this infection brought about a regular decrease of the hemagglutination antibodies and some lowering of the virus-neutralizing activity of the serum. However, these changes were not marked enough to contra-indicate the use of antibiotics in the course of vaccination against tick-borne encephalitis.

16. Kaitmazova, E. I., Influence of tetracycline on the immunity against experimental brucellosis infection. Antibiotiki 9 (1964) 5:433-437.
(From the Brucellosis Department of Gamaleia IEM, AMS, USSR.)

The author found that after tetracycline treatment of white mice infected with Br. melitensis the resistance of the animals to superinfection with Br. suis decreases. This phenomenon appeared to be due to an inhibition of the protective

functions of the body caused by the antibiotic. It was likewise found that tetracycline treatment of brucellosis-infected white mice leads to a considerable decrease of the formation of agglutinins.

The author concluded from these observations that it was indispensable to combine the treatment of brucellosis with antibiotics and with vaccino-therapy.

17. Marshak, A. M., Conference on the clinical use of antibiotics. Antibiotiki 9 (1964) 5:464-471.

18. Eidel'shtein, S. I., Symposium on aerosols. Antibiotiki 9 (1964) 5:472-475.

These two reports on conferences held in Moscow in 1963 can be quoted by title only.

19. Demidova, S. A. and Svet-Moldavskii, G. IA., Preparation of monolayer cultures from the tissues of amphibia and attempts to use them for the cultivation of the vaccinia and measles viruses. Biul. eksp. biol. i med. 57 (1964) 1:123-125. (From the Novosibirsk MI.)

The use of the media mentioned in the title of this note gave disappointing results.

20. Volosivets, A. I., Frequency of the formation of phage-resistant mutants in the cell population of virulent plague strains. Biul. eksp. biol. i med. 57 (1964) 3: 71-75. (From the All-Soviet SR Anti-Plague Institute "Mikrob," Saratov.)

The main conclusions reached by the author of this article were that (a) phage-resistant mutants develop less frequently in the case of virulent than of avirulent plague strains; and (b) the formation of these mutants is not the result of a spontaneous mutation, but due to a process of adaptation.

Selected Abstracts-III/6

21. Domaradskii, I. V. and Klimova, I. M., The anti-aldolase activity of the anti-plague serum and the difference of the aldolase of P. pestis from its toxin. Biul. eksp. biol. i med. 57 (1964) 4: 84-87.
(From the Irkutsk SR Anti-Plague Institute for Siberia and the Far East.)

The details of this brief but well documented article do not lend themselves to the purposes of a brief review.

22. Novikov, P. L. and Povarekho, I. A., Efficacy of the anti-rabies gamma-globulin in the treatment of patients with post-vaccinal meningo-encephalitis. Zdravookhranenie Belorussii (1964) 5: 81-82.
(From the Municipal Infectious Diseases Hospital of Mogilev.)

This note contains the clinical history of a 15 year old patient who developed signs of meningo-encephalitis with a paresis of the pelvic organs after he had received the 13th injection of anti-rabies vaccine. The authors found that "anti-rabies gamma-globulin, in combination with a desensitizing therapy, used in the acute period of the post-vaccinal complication gave a good therapeutic effect."

23. Reinet, IA. et al., Review of A. A. Minkh's book "Ionization of the Air and Its Hygienic Importance." Medgiz (1963), 351 pp. Zdrav. Belorussii (1964) 5: 90-91.

This is, on the whole, a rather favorable review of Minkh's book on air ionization, which is said to contain 236 Soviet and 163 foreign references. The reviewers claim that no monograph of a comparable character has been published on this subject abroad.

24. Sushkovskii, I. I., Hemorrhages in brucellosis patients. Sovetskaya meditsina (1964) 5:109-112.
(From the Surgical Department of the Omsk M. I. Kalinin MI.)

In the conclusion of this article which besides a brief general discussion of its subject contains the histories of four patients the author stated that

Selected Abstracts-III/7

1. Hemorrhages, sometimes with a fatal issue, are met with in 25% of the brucellosis patients.

2. The causes of the hemorrhages are a disturbance of the thrombocytopoiesis and an increased permeability of the blood capillaries due to an affection of their walls.

3. The hemorrhages taking place in brucellosis vary markedly in their localization and character - from cerebral and nasal hemorrhages with a fatal issue to hemorrhagic infiltrates and skin petechiae; and from gastrointestinal to pulmonary hemorrhages.

4. Besides attention to the basic affection the treatment of the brucellar hemorrhages ought to comprise attempts to increase the coagulability of the blood, replacement of the blood losses and a careful general management of the sufferers including the use of mechanical means to stop the bleeding.

25. Strikhanova, E. V., Experience of the liquidation of brucellosis of the goat-sheep type in the Krasnodar Krai. Zh. mikrobiol. (1964) 6: 34-37.
(From the Sanitary-Epidemiological Station of the Krasnodar Krai.)

As stated in this article, the details of which must be studied in the original or in a translation, the incidence of human brucellosis recorded in the Krasnodar Krai from 1943 to 1963 amounted to 7,347 cases including 1,723 recent infections. However, owing to a drastic reduction of the foci of goat-sheep brucellosis the incidence of the disease in man became low within recent years. Still, sporadic attacks, standing in relation to foci of cattle brucellosis, still continue to occur.

The principal measures leading to an almost total disappearance of the disease in the foci of goat-sheep brucellosis consisted of the slaughtering of all diseased animals, steps against a re-infection of the farms rendered healthy and large-scale anti-brucellosis vaccination of the groups of the human population under the risk of infection.

26. Sorochenko, IA. I. and Shcherbak, IU. F., Allergic indices becoming manifest after intracutaneous administration

Selected Abstracts-III/8

of the therapeutic brucellosis vaccine in combination with hyaluronidase. Preliminary communication. Zh. mikrobiol. (1964) 6: 74-76.
(From the Central Institute for ATP, Moscow.)

The conclusions reached by the author of this note were that

1. Administration of hyaluronidase together with that of anti-brucellosis vaccine by the intracutaneous route lead to an intensification of the local allergic reactions.

2. Positive reactions could be obtained in this manner in brucellosis patients with a negative Burnet's reaction. Healthy persons or such suffering from polyarthrititis not due to brucellosis reacted negatively to the new test.

27. Grekova, N. A. and Ostrovskaya, N. N., Pathomorphological characteristics of the organs of guinea-pigs infected with agglutinable and inagglutinable cultures of Br. melitensis. Zh. mikrobiol. (1964) 6: 111-115.
(From the Gamaleia IEM, AMS, USSR.)

The conclusions reached in this well documented and illustrated article, the text of which does not lend itself to the purpose of condensation, were that

"1. The degree of the morbid changes in the organs and lymph nodes of guinea-pigs infected with inagglutinable brucellosis cultures stood in relation to the composition of the (microbial) population, i. e., the percentage relation between agglutinable and inagglutinable organisms.

2. The infection of guinea-pigs with selectively inagglutinable cultures of brucellae with a uniform population (which showed a markedly lowered virulence) did not produce profound patho-histological changes in the organs and lymph nodes; the animals in question showed merely alterations in the reticulo-endothelial system.

3. Profound morbid changes, typical for virulent Br. melitensis strains, were observed

in guinea-pigs infected with selectively agglutinable brucellosis cultures, wholly consisting of agglutinable organisms.

4. The inagglutinable Br. melitensis strains yielded profoundly dissociated cultures with signs of saprophitization, as indicated by their markedly lowered virulence and pathogenicity.

5. The present observations indicate the necessity of using for experimental investigations (particularly for the infection of test animals) brucellosis cultures with a uniform composition of their population."

28. Pilipenko, V. G., Observations on the possibilities for improving the organization of mass vaccinations against tularemia. Zh. mikrobiol. (1964) 6: 29-34.
(From the Stavropol Anti-Plague Institute for the Caucasus and Transcaucasus.)

The author of this article, the details of which must be studied by those interested in the incidence and prophylaxis of tularemia, reached the following conclusions:

"1. The limited extent to which the population of the Stavropol Krai has been reached for many years by anti-tularemia vaccinations was due mainly to the tendency of implementing this method simultaneously in all enzootic raions of the krai, even though these differ in the degree of danger for the population. As a consequence not enough staff, vaccine and other means were available to conduct the campaigns within limited periods, errors were made in the records, etc.

2. In order to implement this measure in an orderly fashion, it would be well to sub-divide the whole enzootic area into groups of raions according to their degree of danger for the population and to conduct planned vaccination campaigns in these groups of raions successively, starting in the most endangered localities and ending the campaigns in enzootic, but less endangered raions.

Selected Abstracts-III/10

3. In each group of raions the whole population must be vaccinated within one year and in the same sequence planned re-vaccinations must be administered in the groups of raions every five years.

4. During the years intervening between the mass vaccination campaigns this method has to be used only for persons arriving from tularemia-free areas and for children becoming 7 years old."

(As can be gathered from the text of the article, 86 tularemia attacks were recorded in the Stavropol Krai in 1961, and 55 in 1962.)

29. Mursalova, N. N., Fight against smallpox in the Tavrichesk District during the first half of the XIXth century. Zh. mikrobiol. (1964) 6:137-139.
(From the Crimean MI.)

This historical article can be quoted by title only. The same holds true of the articles enumerated below.

30. Favorova, L. A., Some theoretical problems of the epidemiology of infections caused by conditionally pathogenic microorganisms. Zh. mikrobiol. (1964) 6: 12-17.
(From the Gamaleia IEM, AMS, USSR.)
31. Mironov, V. P. and Krashkevich, K. V., Observations on the concept "Reservoir of the causative organisms of infectious diseases." Zh. mikrobiol. (1964) 6: 17-22.
(From the Moscow Lomonosov State University.)
32. Spotarenko, S. S., The significance of relative indices for the study of the seasonal character of infectious diseases. Zh. mikrobiol. (1964) 6: 22-25.
(From the Sanitary-Epidemiological Station of the Moscow Oblast.)

The author recommends to use for epidemiological analyses the monthly morbidity indices for population groups of 10,000 or 100,000 persons.

33. Andreev, S. V. et al., Survey of the contents of the theses dealing with virusology, microbiology and pathology. Zh. mikrobiol. (1964) 6: 60-67.

This survey which quotes 74 recent theses, can be mentioned by title only.

34. Kagan, G. IA. et al., Some regularities of the L-form reversion of pathogenic microorganisms. Zh. mikrobiol. (1964) 6: 67-70.
(From the Gamaleia IEM, AMS, USSR, and the Second Moscow Pirogov MI.)

This well documented article which is illustrated by five micro-photographs has to be studied in the original or in a translation.

35. Frolova, M. A. et al., Dynamics of the changes in the content of nucleic acids in the process of immunogenesis. Zh. mikrobiol. (1964) 6: 70-74.
(From the Moscow Mechnikov Vaccine and Serum Institute, and the First Order of Lenin Moscow Sechenov MI.)

The authors summarized the results of their observations by stating that

"1. The method of spectrophotometric determination of the total contents of nucleic acids (ribonucleic and desoxyribonucleic acids) in the homogenates of guinea-pig lymph nodes undergoing immunization with adsorbed anatoxins permitted to detect characteristic dynamics of their quantitative changes.

2. The amount of the nucleic acids in the regional and the remote lymph nodes and in the spleen underwent in the process of immunogenesis changes of a uniform type: an increase 24 hours after the immunization with a drop to the norm within 2-5 days and a subsequent rise on the 7th day.

3. A characteristic difference in the dynamics of the quantitative changes of the nucleic acids

Selected Abstracts-III/12

in the regional lymph nodes on the one hand, in the remote lymphoid organs on the other hand concerned the relative size of the first and second rise of the nucleic acid content; this difference characterized the role of these organs in the process of immunogenesis.

4. Because of these observations one may postulate that the quantitative changes in the nucleic acid content are characteristic for the unspecific as well as for the specific phase of the immunological transformation."

36. Vaisberg, G. E. and Golosova, T. V., Changes in the resistance of chick embryos to various infections under the influence of polysaccharides of non-pathogenic organisms. Zh. mikrobiol. (1964) 6: 96-101.
(From the Central Institute for ATP.)

The authors found that biologically active polysaccharides of non-pathogenic microorganisms (acetoxan, prodigiosan and glucan) are capable of stimulating the unspecific resistance of chick embryos infected with lethal doses of Staphylococcus aureus or E. coli.

37. Voronin, E. S. and Gavrilov, V. I., A study of the role of Proteus vulgaris in the etiology of acute gastrointestinal affections of monkeys.
Zh. mikrobiol. (1964) 6:102-106.
(From the Tarasevich State Control Institute.)

The authors summarized their findings by stating that

"1. Clinical, pathological, bacteriological and serological investigations of 300 monkeys permitted to postulate an etiological role of Pr. vulgaris in the production of gastrointestinal affections of these animals.

2. Experimental infection of monkeys with one-day old cultures of this organism led to affections characterized by enterocolitis and signs of a general intoxication.

3. The peroral administration of proteus phage for the purpose of the prevention of colitis in monkeys gave favorable results.

4. Macacus rhesus may be used for a study of these proteus-caused affections."

38. Dzharylgasov, S. and Suvorov, V. S., Review of the book "IApon-skii entsefalit" (Japanese encephalitis) by P. A. Petrishcheva et al. Moscow (1963).

39. Bezdenezhnykh, I. S. and Kovaleva, E. P., Review of the book "Toksoplasmoz: epidemiologiya, klinika, terapiya i profilaktika" by L. K. Korovitskii et al., Kiev (1962), 187 pp.

These two book reviews can be mentioned by title only.

40. Andzhaparidze, O. G. et al., Observations on the possibility of using the plaque count method for quantitative studies of the tick-borne encephalitis virus and its ribonucleic acid.
Vop. virusol. (1964) 3:335-339.
(From the Moscow SR Institute of Virus Preparations.)

The authors of this article, the details of which must be studied in the original or in a translation, came to the conclusion that

"a direct relationship exists between the dilutions of the material under test and the number of plaques formed. This proves the mathematical reliability of the results and shows the possibility of using the (plaque count) method for quantitative studies of the tick-borne encephalitis virus."

The reference list appended to this paper quotes 6 articles appearing in Soviet medical journals and 7 published abroad (including one from Czechoslovakia).

41. Desiatkova, R. G. and Andzhaparidze, O. G., Influence of some factors on the plaque formation in cultures

Selected Abstracts-III/14

implanted with the tick-borne encephalitis virus and its ribonucleic acid.

Vop. virusol. (1964) 3:339-344.

(From the Moscow SR Institute of Virus Preparations.)

The conclusions reached by the authors of this well documented article, in which 23 references - mostly from foreign sources - are quoted, were that

"1. Neutral red and agar were found to exert an inhibitory action on the plaque formation in tissue cultures of the tick-borne encephalitis virus and its RNA.

2. It was found possible to counteract the inhibitory action of agar by treating it with protamin sulfate, while that of neutral red could be avoided by adding it to the cultures 48 hours after the implantation of the virus.

3. The mechanisms of the inhibiting action of neutral red and of agar are of a different nature. In the former case the inhibitory action stands in relation to an influence on the virus in the process of its synthesis, while the agar inhibitors act directly on the virus particles.

4. A study of the plaque formation in cell cultures implanted with the RNA established that the introduction of 1 M NaCl solution into the medium brought about a maximal plaque formation."

42. Gaidamovich, S. IA. et al., Isolation and identification of the tick-borne encephalitis virus in tissue cultures.
Vop. virusol. (1964) 3:344-348.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

The authors found chick embryo fibroblast tissue cultures sufficiently sensitive for the isolation of the tick-borne encephalitis virus from the blood of patients. However, because of the absence of a cythopathogenic action and

the irregular accumulation of hemagglutinins and the complement-fixing antigens in such cultures transfers into sheep embryo kidney epithelium cultures were necessary for the performance of hemagglutination and complement fixation tests. Examinations made with the aid of the above described technique gave more rapid results than diagnostic tests in white mice.

43. Borodina, T. A., Keratogenic properties of the tick-borne encephalitis virus. Vop. virusol. (1964) 3:354-357. (From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

Summarizing the results of her investigations, Borodina stated

"that the virus of tick-borne encephalitis, introduced into the anterior chamber of the eye of white mice in the form of a 10% or 20% suspension from the brain of mice affected by encephalitis accumulates in the cornea and produces the clinical picture of the disease. Locally signs of keratitis become manifest.

The introduction of the tick-borne encephalitis virus into the anterior chamber of the eye of white mice in the form of 10% or 20% suspensions from the yolk sacs of growing chick embryos as a rule did not produce signs of the infection in the test animals and did not lead to keratitis."

The author claimed that, to judge from the available literature, thus far white mice had not been used for tests of the above described kind.

44. Unanov, S. S., Study of the immunological activity of the tissue vaccine against tick-borne encephalitis produced in the Moscow SR Institute of Virus Preparations. Vop. virusol. (1964) 3:357-361. (From the Moscow SR Institute of Virus Preparations.)

The author found satisfactory the inactivated tissue vaccine against tick-borne encephalitis, prepared in his institute. As far as observed, it conferred a humoral immunity lasting for at least six months. Results were best in persons not showing antibodies against the infection before the vaccination.

Selected Abstracts III/16

45. Semenov, B. G. and Rezepova, A. I., A method of mass serological examination for the detection of antibodies against the tick-borne encephalitis virus. Vop. virusol. (1964) 3:367-368.
(From the Moscow SR Institute of Virus Preparations.)

In order to prove the suitability of the hemagglutination inhibition test for the purpose of large-scale serological examinations of the population of tick-borne encephalitis foci, the authors made preliminary use of this reaction in rabbits which had been immunized against this infection. They made for this purpose parallel tests with blood specimens (a) taken in quantities of 5-8 ml from the heart of the animals; (b) obtained in 1 ml quantities from their ear vein; and (c) collected in quantities of about 0.2-0.25 ml also from the ear vein with the aid of filter paper disks. The anti-hemagglutinin titers ascertained with the aid of these methods of blood collection were either identical or showed merely slight differences.

Hemagglutination inhibition tests performed on tick-borne encephalitis patients and on healthy persons with (a) blood samples taken in 1 ml quantities from their fingers or (b) from the elbow vein likewise gave analogous results.

46. Gendon, IU. Z. et al., Properties of genetically homogeneous clones of the vaccinia virus.
Vop. virusol. (1964) 3:291-295.
(From the Moscow SR Institute of Virus Preparations.)

The conclusions reached by the authors of this article were that

"1. Using the plaque method, it was possible to isolate from genetically not homogeneous strains of the vaccinia virus two clones, which differed only in the type of lesions on the chorio-allantoic membrane of chick embryos and in the character of the plaques on tissue cultures under an agar overlay.

2. The two clones retained their genetic homogeneity after passage in tissue cultures, chick embryos, rabbits and calves.

3. From genetically homogeneous clones series of smallpox vaccine were prepared which proved to be genetically homogeneous and highly active in laboratory tests and for the vaccination of children."

47. Marennikova, S. S. and Mal'tseva, N. N., Comparative study of some strains of the vaccinia virus.

Report I. Peculiarities of the behavior in embryonated eggs, hemagglutinating activity and thermoresistance. Antibiotiki (1964) 3:280-286.

Report II. Pathogenicity for laboratory animals. Ibidem, 287-291. (From the Moscow SR Institute of Virus Preparations.)

1. The conclusions reached by the authors in their first article were that

- (a) The existence of intraspecies differences among the vaccinia virus strains tested was demonstrated;
- (b) A number of the vaccinia virus strains used for vaccine production showed genetical differences;
- (c) The strains used for smallpox production in countries with a tropical climate proved to be most thermoresistant; and
- (d) The cowpox strains examined differed from the vaccinia virus strains by showing a lesser hemagglutinating activity, a hemorrhagic character of the lesions produced on the chorioallantoic membrane, smaller dimensions and a low pathogenicity for chick embryos infected into the allantoic cavity.

2. From the findings recorded in their second paper the authors concluded that (a) the vaccinia virus strains used for smallpox production in different countries differ in their pathogenicity for laboratory animals infected by different routes; and (b) the cowpox virus differs from the vaccinia virus in various ways, for instance by the hemorrhagic character of the reactions produced in rabbits through intracutaneous or cutaneous inoculation.

Selected Abstracts-III/18

48. Mel'nikova, L. A. and Kozlova, I. A., Interaction between labelled vaccinia virus and sensitive host cells. Antibiotiki (1964) 3:362-364.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

The contents of this illustrated note do not lend themselves to a condensation.

49. Solov'ev, V. D. and Mastiukova, IU. N., Observations on the mechanism of anti-smallpox immunity. Report V. The role of the cellular reactivity in the phenomena of specific insusceptibility. Antibiotiki (1964) 3:296-301.
(From the Department of Virology of the Central Institute for the Advanced Training of Physicians and the Moscow SR Institute of Epidemiology and Microbiology.)

The authors concluded their article, the contents of which must be studied in the original or in a translation, by stating that

"An analysis of the data presented in the present report leads us to the conclusion that the anti-smallpox immunity is related to changes of the cell reactivity of the lymphoid tissue, accompanied often, but not invariably by the formation of specific antibodies."

50. Kekcheeva, N. K., Experimental elaboration of the chemoprophylaxis of rickettsioses. (Assay of the stability of the induced asymptomatic forms of the infection.) Vop. virusol. (1964) 3:331-335.
(From the Rickettsiosis Department of the Gamaleia Institute, AMS, USSR.)

The conclusions reached in this article, the details of which must be studied in the text, were that

1. The asymptomatic infection in white rats and mice which have been immunized with a chemovaccine prepared from R. mooseri, and in mice immunized with a chemovaccine prepared from R. sibericus shows a sufficient degree of stability since the preliminary administration of cortisone to the test animals does not provoke an infection.

Selected Abstracts-III/19

2. In rats immunized with R. mooseri vaccine, after the preliminary cortisone administration merely an intensified rickettsemia results which, however, does not lead to the death of the animals.

3. The administration of cortisone to white mice markedly increases their sensitivity to infection with R. sibiricus.

51. Podolian, V. IA. et al., Ultrastructure of the L forms of the ornithosis virus. Vop. virusol. (1964) 3:306-309.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

This article which is illustrated by microphotographs taken with the electron microscope, can be quoted by title only.

52. Terskikh, I. I. et al., A tissue vaccine against trachoma. Report I. Experimental studies.
Vop. virusol. (1964) 3:275-279.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

The authors of this article describe the manufacture of a killed tissue vaccine against trachoma which, applied to man by the subconjunctival or intramuscular routes, did not produce severe local or general reactions. The efficacy of the vaccine gives room to hope that it may be suitable not only for prophylactic purposes but also for the treatment of pertinacious forms of the disease.

53. Dutova, G. M., Infection of head-lice with Rickettsia prowazeki.
Vop. virusol. (1964) 3:364-366.
(From the Rickettsiosis Department of the Gamaleia IEM, AMS, USSR.)

The author concluded her article by stating that

1. The breeding of head-lice in the laboratory is possible provided that they are fed 4 times daily with human blood.

2. An infection of the lice leading to an accumulation of R. prowazeki in the intestinal tract can be effected with the aid of Weigl's or of the membrane methods.

3. The feces of the infected lice contain considerable amounts of the rickettsiae. Rubbing of the dry infected feces into the mucosae of test animals produces experimental typhus in the latter.

4. It would thus appear that the head-lice as well as P. vestimentorum are capable of serving as vectors of typhus infection.

54. Zak, A. F. and Klimova, N. E., Experimental investigation of the innocuousness of antibiotics. Antibiotiki 9 (1964) 6:539-543.
(From the Antibiotics Department of the Tarasevich Control Institute of Medical Biological Preparations, Moscow.)

The authors found that "a study of the cytotoxic properties of the antibiotics in tissue cultures considerably supplements the data on their toxicity obtained through animal experiments."

55. Zhuravleva, N. V., A contribution to the methods of an accelerated determination of the sensitivity of microorganisms to antibiotics. Antibiotiki 9 (1964) 6:543-545. (From the Leningrad SR Antibiotics Institute.)

The electrometric described by the author of this brief article must be studied in the original or in a translation of the text.

56. Boiko, I. D., A contribution to the problem of the continuous cultivation of microorganisms producing antibiotics. Antibiotiki 9 (1964) 6:565-572.
(From the All-Soviet SR Antibiotics Institute, Moscow.)

This article, to which a reference list enumerating 59 papers is appended, can be quoted by title only.

57. Ivanova, L. M. and Chabovskii, V. I., Epidemiological evaluation of the method of direct tick extermination in the foci of tick-borne encephalitis. Report I. Med. parazitol. 33 (1964) 3:325-331.
(From the Main Sanitary-Epidemiological Directorate, MH, RSFSR.)

The authors of this well documented article point out that though the method of treating tick-infested localities with DDT or benzene hexachloride is effective, its actual use in the field often gave disappointing results.

Investigations instituted to elucidate the causes of these failures showed that the treatment of too small areas was apt to lead to a rapid restoration of the tick population owing to a re-introduction of ticks in their premature phases from the surrounding regions through birds or rodents. Moreover, the residual action of benzene hexachloride was found to last for not more than 45 days, whereas the successive activation of the ticks in spring and earlier summer took place during a longer period.

The authors state in the concluding part of their article that according to the data available to them

"the area of the yearly treated foci of tick-borne encephalitis in the Kemerovo Oblast does not exceed 4-5% of the territory of the whole oblast and in the other raions of the European part of the Soviet Union this percentage reaches only figures of 0.2-2%. Naturally this scope of the work, even provided that it leads to the destruction of some groups of avertebrates, cannot exert an influence on the density of the soil entomofauna in general."

The authors claim that the detection of the shortcomings of the hitherto used methods of tick eradication has increased the efficacy of the anti-tick campaigns.

58. Titles of important articles published in the English Edition of ACTA VIROLOGICA 8 (1964) Number 3:

- 1) Gaidamovich, S. IA. and TSirkin, IU. M., Improved laboratory diagnosis of tick-borne spring-summer encephalitis. Report I. Typing of virus in hemagglutination and complement fixation tests with tissue culture antigens. Pp. 243-248.
- 2) TSirkin, IU. M. and Gaidamovich, S. IA., Improved laboratory diagnosis of tick-borne encephalitis. Report II. Virus neutralization tests in chick embryos cell cultures, based on the hemagglutination phenomenon. Pp. 249-253.
- 3) Kozuch, O. and Nosek, J., Alimentary infection of the hedgehog with tick-borne encephalitis (TE) virus. Page 284.

Selected Abstracts-III/22

59. Miasnikov, IU. A. and Katelina, A. F., Data on the distribution and phenology of the ticks in the Tula Oblast. Med. parazitol. 33 (1964) 3:357-360.
(From the Sanitary-Epidemiological Station of the Tula Oblast.)

The main conclusions reached by the authors of this study were that

- (a) The four species of ticks occurring in the Tula Oblast are D. pictus, I. ricinus, I. trianguliceps and I. crenulatus.
 - (b) An increase in the frequency of D. pictus takes place during the year following an increased frequency of the common voles on which this tick mainly feeds. In the case of I. ricinus an increased frequency is observed one year after an increase in the numbers of small forest-inhabiting mammals.
 - (c) It has been repeatedly possible to isolate during the inter-epizootic periods from the pasture ticks of the Tula Oblast the causative organisms of tularemia, listeriosis, and erysipeloid. These observations demonstrate a role of the ticks in the maintenance of these infections.
60. Makarenko, N. S., Main species of ticks met with in the Dubossar Raion of the Moldavian SSR.
Med. parazitol. 33 (1964) 3:360-361.
(From the Sanitary-Epidemiological Department of the Hospital of the Dubossar Raion.)

The species of ticks met with in the raion studied by the author were (1) Hyalomma scupense (86.5%); (2) Ixodes ricinus (11.9%); (3) Dermacentor marginatus (1.4%); (4) Hyalomma plumbeum (0.15%); (5) Haemaphysalis punctata (0.05%).

61. Noteworthy titles culled from a reference list inserted in Number 3 (1964) of the journal Meditsinskaia parazitologiya:
- 1) Stepanov, I. R., Dezinfektsiia, dezinseksiia, deratizatsiia. (Disinfection, Desinsectization and Deratization.) Moscow, 1963, 182 pp.
 - 2) Vershinina, T. A., Importance of the mobility of the mice and allied rodent species in the epizootology of the diseases with a focal occurrence. Probl. zool. issled. v Sibiri. Gorno-Altaiisk (1962): 36.

- 3) Garbusov, M. A. and Lipaev, V. M., Contact relations of the rodents in the natural foci of infections in the Khabarovsk Krai during winter. In: Kleshchevoi entsefalit i virusnaia gemorragicheskaya likhoradka. Materialy konferentsii, Omsk (1963): 167-170.
62. Lalazarova, I. G., Observations on the action of oxytetracycline on the plague bacillus in artificial media. Antibiotiki 9 (1964) 7:628-633.
(From the All-Soviet SR Anti-Plague Institute "Mikrob," Saratov.)

In order to investigate the action of oxytetracycline hydrochloride on plague cultures, the author worked with 10 strains, namely (a) 3 avirulent strains including the EV strain; (b) 3 strains with a DCL of 10,000 organisms for guinea-pigs; and (c) 4 highly virulent strains (DCL for guinea-pigs 100 organisms).

Summarizing the results obtained through cultivation of these strains in various broth media to which the antibiotic had been added, Lalazarova stated that

"If added to Hottinger's broth in a proportion of 1 million organisms per ml and cultivated at 28°C, the plague bacillus is sensitive to the action of oxytetracycline in a concentration of 1.56-6.25 mkg/ml or at higher concentrations. The bactericidal action of the antibiotic begins to become manifest at a concentration of 100-200 mkg/ml. A 10-fold increase of the seed material decreases the sensitivity of the organisms about 3-4 times. Organisms undergoing cell division were found to show a higher sensitivity to the antibiotic than that present in the early stage of the lag-phase. The sensitivity of the plague bacillus to oxytetracycline is higher in meat-peptone broth to which glucose or galactose are added, or in acid media incubated at 37° or 41°C."

A prolonged action of oxytetracycline in a concentration of not less than 25 mkg/ml led to the death of organisms cultivated in Hottinger's broth.

In the course of prolonged cultivation in oxytetracycline-containing media combined with frequent subcultivation

the plague bacilli undergo profound changes, rendering them in some respects, e.g., in regard to their action on rhamnose, similar to the pseudotuberculosis bacillus. Formerly glycerol-negative strains began to affect this compound. The strains subjected to passage in oxytetracycline-containing media showed a marked loss of their virulence and immunogenicity. After 30 passages the strains became more or less resistant to the action of the antibiotic.

63. Lukash, B. and Libikh, IU., Influence of antibiotics on the resistance of white mice against experimental tularemia and the activity of the reticulo-endothelial system. Antibiotiki 9 (1964) 7:604-610.
(From the Military Institute of Hygiene, Epidemiology and Microbiology, Prague.)

The authors of this well documented article, the details of which must be studied in the original or in a translation, found that kanamycin and streptomycin increased the unspecific resistance of white mice to tularemia infection. A prolonged use of these antibiotics, especially of the first mentioned, increased the activity of the reticulo-endothelial system.

64. Slov'eva, N. K. et al., Characterization of the organism producing the antiviral antibiotic Vaccinocidin, its recovery and properties. Antibiotiki 9 (1964) 7:596-602.
(From the All-Soviet SR Antibiotics Institute, Moscow.)

This article contains a preliminary description of an actinomycetal culture found to exert a viricidal action on the vaccinia virus.

65. Skvortsov, V. V.,* Reduction and liquidation of infectious diseases in the country. Sov. zdravookhranenie (1964) 7: 3-7.

* Chief of the Department of Epidemiology of the 2nd Moscow Medical Institute and Chief Epidemiologist of the RSFSR Health Ministry.

This article deals mainly with the campaigns against diphtheria, poliomyelitis, acute-gastrointestinal infections and tularemia.

As pointed out by the author, the fight against the last mentioned disease is particularly difficult owing to its occurrence in natural foci where rodents, particularly mice and allied species and water-rats, form the reservoir of the infection. Characteristic for the first mentioned group of rodents is a constant tendency for migration which, in its turn, leads to an importation of tularemia into hitherto unaffected areas. As an example the author quotes the Bryansk, Smolensk and Kaluga Oblasts where sporadic cases were noted during some of the last 5-6 years and in 1962 groups of attacks with a total case incidence of 232 were recorded. An investigation of the largest group of attacks (123) in the Kaluga Oblast showed a casual connection of the human outbreak with a water-rat epizootic.

The implementation of a complex program of measures in areas where permanent tularemia foci exist, led to a marked decrease of the incidence of the disease in man, amounting to 43.5% in 1962. This reduction would have been still more marked, had not new territories been reached by the infection. To obtain knowledge of such new invasions, constant surveys of the floodlands of the rivers and the fields are necessary at least during the periods when the hay and grain are harvested. However, as the author admits, owing to the scarcity of medical personnel in the rural areas this is a difficult task.

In order to obtain timely information on the appearance of epizootics, it is indispensable to enlist the cooperation of the physicians of the raion (village) hospitals and of the personnel of the feldsher stations who are in close touch with the local population. For this reason it is necessary that the doctors and feldshers get well acquainted with the epidemiology and clinique of tularemia. The author notes in this connection that during the 1962 outbreak in the Kaluga Oblast 33 tularemia patients were admitted to one raion hospital but that, though many of them had buboes, the presence of tularemia was never suspected. The true nature of the outbreak, which started in August, was recognized only in December, when workers from the sanitary-epidemiological station of the oblast made a survey in the raion.

Thus, the author postulates hand in hand with anti-tularemia vaccination in the foci and rodent destruction

constant vigilance on the part of the local medical workers is necessary so that timely anti-epidemic measures can be taken. If adequate arrangements for local cooperation have been made, it will be possible to prevent group attacks of tularemia. It is impossible, however, to foretell when the disease will be eradicated.

66. Lotova, E. I. (Moscow), The sanitary-epidemiological situation in the country during World War I (1914-1917). Sov. zdravookhranenie (1964) 7: 76-80.

This article which is merely of historical interest, can be quoted by title only.

67. Rudaia, B. I. and Bilyk, V. D., Observations on the clinical aspects and the diagnosis of the presently met with forms of epidemic encephalitis. Vrachebnoe delo (1964) 7: 71-75.
(From the Department of Nervous Diseases of the Vinnitsa MI and the Department for Nervous Diseases of the Vinnitsa Psychiatric-Neurological Hospital.)

This article, in which observations on 124 patients met with during the period from 1944 to 1962 are recorded, does not lend itself to the purposes of a brief review.

68. Korovitskii, L. K. (Odessa), Review of the book by I. L. Bogdanov Vnutribol'nicnye infektsii i ikh profilaktika (Hospital Infections and their Prevention). Kiev 1963.

This favorable review can be mentioned by title only.

69. Izvestiia Irkutskogo gosudarstvennogo nauchno-issledovatel'skogo protivochumnogo instituta Sibiri i Dal'nego Vostoka (Reports of the Irkutsk Anti-Plague Institute), Vol. 24 (1962):

- 1) Kudinova, Z. S. et al., An instance of the isolation of weakly virulent plague strains in the Transbaikalian enzootic focus. Pp. 3-9.

As the authors summarized

"Apparently there occurred in the summer of 1960 in the Gulzhenga valley of the Borzia Raion (Chita Oblast) a slowly progressing and limited plague epizootic, inasmuch as cultures were isolated only in an area with a radius of 700-800 m north-east of the Zun-Torei Lake. The low density of rodents in this area and the absence of tarabagans in its immediate vicinity deserve attention in this connection.

The plague cultures isolated by us were peculiar in so far as they were weakly virulent for white mice and avirulent for guinea-pigs. Regarding to their cultural characteristics one has to note their ability to reduce nitrates to nitrites. In other respects the five cultures isolated proved typical."

As can be gathered from the text of the article, these cultures were isolated from (a) a Dauria hamster; (b) a pool of 19 fleas of the species Frontopsylla luculenta; (c) a Dauria suslik; (d) a specimen of Brandt's mouse and (e) an organ pool of 5-days old mice of the same species.

- 2) Nekipelov, N. V. et al., Epizootological observations in Gulzhenga. Pp. 10-19.

As described briefly in this article, the northern shore of the Torei Lakes was from 1940 to 1946 the scene of active plague epizootics, described in earlier publications by the senior author. Examinations of almost 300,000 rodents (including 132,500 tarabagans) from that area as well from Transbaikalia in general during the period from 1946 to 1960 gave negative results. However, in order to establish whether the infection had really become absent, operations against the tarabagans were stopped in a formerly severely affected area situated north and north-east of the Zun-Torei Lake. To obtain evidence of the existence of plague, at first a search for rodent carcasses was instituted and hand in hand with this small rodents were trapped for the purpose of bacteriological examinations. Only from 1959 onwards such examinations were also made in the case of the tarabagans, the population density of which had become considerably increased in the meanwhile.

Selected Abstracts-III/28

As mentioned in the preceding review, in 1960 the presence of plague was established near the locality where the 1945-1946 epizootics had taken place. The scene of the 1960 epizootic was free from tarabagans, but since the area in question was attractive for the sisels, the latter might have imported the infection from neighboring stretches inhabited by the marmots.

In April 1961 two weakly virulent plague cultures were isolated from two of the latter rodents in a locality 15 km north-east from the area affected in 1960.

In view of the danger of a spread of the infection, already in 1960 the eradication campaign against the tarabagans was resumed.

Evaluating the above recorded findings, Nekipelov and his associates postulated that during the quiescent period from 1946 to 1960

"the plague bacillus continued to exist in the area concerned in a somewhat changed form, not detectable with the aid of the presently used bacteriological methods. One might claim in this connection that the infection continues to exist in this manner also in some other localities of Transbaikalia."

The authors felt convinced that the tarabagans and to a lesser extent the Dauria sisels formed the reservoirs of plague in Transbaikalia. Evaluating the role of these two species, Nekipelov and his colleagues stated that

"on account of the low population density of the tarabagans observed in Transbaikalia after the eradication campaigns (as low as 0.3 inhabited burrows per hectare) and the usually slight frequency of the Dauria susliks (1-2 individuals per hectare), conditions for the development of plague epizootics in that focus are unfavorable. Such epizootics had been absent for 13 years.... One may assume that if plague continues to exist in the form of isolated small foci, such will be infinitely less dangerous for the population as long as the wholesale destruction of the tarabagans is continued. Therefore, inasmuch as this work might result in the total disappearance of this species, it must be

considered as adequate and justified in the Transbaikalian plague foci. The situation regarding the plague carriers capable of becoming again quickly numerous after eradication campaigns is different. In this case, provided that plague continues to exist during the interepizootic periods in a hidden form, the effect of eradication campaigns will be, but, temporary."

Nekipelov and his co-workers maintained, therefore, that further thorough researches were necessary in order to elucidate the mechanism of the continued existence of plague in Transbaikalia during the interepizootic periods.

- 3) Gordienko, P. S. and Gordienko, O. IA., A plague epizootic among Mongolian rat-hares. Pp. 20-21.

The authors of this brief note describe the occurrence of an epizootic among Mongolian rat-hares (Ochotona pricei) in 1955 in the Nogon-Nur Somon of the Mongolian People's Republic, which presumably was causally related to the presence of the infection among the long-tailed susliks (Citellus undulatus). The presence of plague in tarabagans had been previously recorded in the locality in question.

- 4) Lombin Davaa: Detection of plague among tarabagans in a Mongolian focus during winter. Pp. 22-23.

Two instances are recorded in this note in which plague-infected tarabagans left their burrow during winter, soon to succumb to the disease. Instances of such interruptions of hibernation are rare.

- 5) Aparin, G. P. et al., A study of the seasonal susceptibility of the Dauria susliks to plague during the period of their active life in relation to some physiological phenomena. Pp. 32-33.

The elaborate observations of the authors confirmed that in the course of summer the Dauria susliks become increasingly resistant to plague.

- 6) Vasiukhin, L. V. et al., A contribution to the problem of the methods for determining the motility of bacterial strains kept in the museum. Pp. 36-44.

Working with P. pestis and P. pseudotuberculosis as well as with some other bacterial species, the author

Selected Abstracts-III/30

found the method of cultivation in semi-solid agar suitable for demonstrating the presence or absence of motility in strains kept in storage.

- 7) Timofeeva, L. A., Observations on the acceleration of the bacteriological diagnosis of acute plague in experimental animals. Pp. 45-48.

The author used for a rapid diagnosis of acute plague in test animals (a) agar plates containing 0.01% hemolysed blood or also a 1:100,000 solution of gentian-violet and (b) the double agar tube medium recommended by Timofeeva et al. (Laboratornoe delo, 1957, 4: 38), which contained per liter of 1% agar 1 g glucose, 10 g lactose and 10 g urea with Andrade's indicator and brom-thymolblue. Pieces of the liver and spleen of the animals under test were well rubbed into the surface of the plates and then drops of plague and pseudotuberculosis phages were put on. At the same time the materials under test were used for the insemination of the slant and butt of the tube media. Cultivation was done at a temperature of 28-30°C.

Using these methods, the authors found it possible

"to recognize within 20-24 hours the fundamental signs characteristic for P. pestis, namely: the morphology of the colonies developing on the agar plates, the morphology of the organisms and their reaction to Gram's strain, the lysis by plague and pseudotuberculosis phages and the fermentative activity of the organisms in regard to glucose, lactose and urea."

- 8) Aparin, G. P., Observations on the phagocytic activity of the leucocytes of animals differing in their species and individual resistance to plague. Pp. 133-137.

Concluding his well documented article, Aparin stated that

"In order to evaluate the result of the present work it is necessary to start from previous statements regarding the character of phagocytosis in plague According to Pokrovskaja

and Kaganova (in 'The cytological method of studying the mechanism of immunity,' Moscow, 1947) the polynuclear leucocytes of plague-susceptible animals are not capable of ingesting and destroying the plague bacilli and, therefore, the macrophage system 'is the fundamental battle-ground, on which the fight of the body with the infection is conducted.' On the other hand Meyer (J. Immunolog. 64, 1950: 139) quoted Bhatnagar and Shrivastava who, working with plague-resistant Bombay rats, showed that during the first 48 hours after infection the polynuclears actively resist the invasion of the plague bacilli."

In their own investigations the authors obtained comparatively quite high indices of complete phagocytosis with the leucocytes of dogs so that these cells seemed capable of rendering P. pestis harmless in vivo. The leucocytes of the guinea-pig and the white rat, on the contrar', appeared to be unsuitable for a fight with this organism. To judge from the indices of complete phagocytosis the rabbits assumed in this respect an intermediate position.

- 9) Aparin, G. P., Contribution to the problem of the factors of the natural resistance to plague. Pp. 138-141.

The conclusions of the author were that

"1. Normal horse serum, added to solid nutrient media, led to some lowering of the virulence of P. pestis.

2. Normal horse serum, administered to white rats simultaneously with a plague culture, retards the development of the infection. Normal guinea-pig serum fails to exert such an action.

3. Studying the invasive properties of the EV strain, one could note some inhibitory action exerted by normal horse serum on the spread of the vaccinal organisms in white mice.

- 10) Skalon, T. G., Contribution to the problem of the importance of the immunizing dose in the prevention of pneumonic plague. Pp. 143-145.

Selected Abstracts-III/32

The aim of the author of this report was to ascertain whether it was possible to confer a solid immunity against pneumonic plague infection through the administration of increased vaccine doses by the subcutaneous or intradermal routes. He compared for this purpose the efficacy of 3 billion doses of the vaccine 1-17 administered by various routes with that of 1 billion doses and with such of 10,000 organisms. The guinea-pigs used for these tests were challenged 2 or 3 months after immunization by the intratracheal route. It was found that

"in the protection of guinea-pigs against intratracheal challenge with a virulent plague culture the subcutaneous and intradermal administration of 1 or 3 billion vaccine doses confers a weaker immunity than the administration of these doses into the respiratory tract."

and that

"in all types of immunization a dose of 3 billion organisms was not superior to one of 1 billion."

The author added, however, that further tests were necessary in which instead by the intratracheal route the vaccine was administered by inhalation.

- 11) Smirnov, V. P., Vaccination against plague through the conjunctiva. Pp. 146-161.

The results of guinea-pig experiments and ample experiences gathered during vaccination campaigns in plague-affected localities led the author to the following conclusions:

"1. Besides the respiratory passages, the conjunctiva of the eye serves as a portal of entry for primary pneumonic plague infection in man and in experimental animals, the causative organisms entering the trachea and lungs through the lacrimal duct.

2. Through conjunctival infection of guinea-pigs one can produce primary pneumonic plague, sometimes with an involvement of the regional

lymph nodes.* The plague bacilli enter within less than an hour through the lacrimal duct into the trachea and within less than 24 hours into the lung; later the organisms reach also other organs.

3. After conjunctival vaccination of guinea-pigs one observes a reaction in the mucosae of the eye in the form of a slight conjunctivitis, appearing after some hours and lasting up to 2 days.

An immunity appears in these animals not later than within a week and lasts for not less than 6 months, in a majority of the guinea-pigs for 9 months.

4. Immunization of guinea-pigs by the conjunctival route with a live anti-plague vaccine prepared from a standard EV strain in doses from 0.5 to 1.5 billion protects against primary pneumonic plague caused through intratracheal infection.

5. After vaccination of the animals with the aid of the subcutaneous, cutaneous or the combined methods of immunization and challenge with a virulent plague culture the animals suffer from an abortive form of plague.

6. The combined method of anti-plague vaccination (simultaneous vaccine administration subcutaneously and through the conjunctiva in doses of 1.5 billion organisms each) protects guinea-pigs against infection with 50 or 250 DLM introduced intratracheally or directly into the lung tissue.

7. Plague vaccination through the conjunctiva proved harmless in man: one observed merely a reaction on the part of the mucosa of the eye in the form of a slight conjunctivitis appearing within some hours and lasting up to 2 days. Within 1.5-2 days there appears

* The process in the latter case has to be classified as one of bubonic plague with secondary lung involvement. R. P.

Selected Abstracts-III/34

a reaction on the part of the lungs consisting of a slight dry cough which disappears without treatment within 2-3 days.

8. In active plague foci where the pneumonic type was prevalent, massive vaccinations by the conjunctival route showed a high epidemiological efficacy: the morbidity among the vaccinated was 127 times lower than that among the vaccinated persons living under same conditions.

9. In the same foci the epidemiological efficacy of conjunctival vaccination proved to be 47 times higher than that of subcutaneous administration of the same vaccine.

10. Combined vaccination (conjunctivally and subcutaneously, administered simultaneously or after an interval) also showed a high epidemiological efficacy (reducing the morbidity 33 times)."

- 12) Osipenko, I. I. and Skalon, T. G., Contribution to the problem of anti-plague vaccination through the respiratory organs. Pp. 162-169.

The authors of this article, the text of which does not lend itself to the purpose of a brief review, made a study of the morbid changes in guinea-pigs immunized intratracheally or subcutaneously with 1 billion doses of the plague vaccine 1-17 and two months later challenged with 200 DCL of a virulent plague strain. The findings in animals which were sacrificed at different intervals as well as in those which succumbed spontaneously after challenge "testified to the presence in the immunized animals of a comparative insusceptibility to pneumonic plague which was marked in the case of vaccination by the intratracheal route."

- 13) Domaradskii, I. V. et al., Experimental findings regarding anti-plague vaccination with pseudotuberculosis bacilli. Pp. 170-177.

The conclusions reached by the authors were that

1. Subcutaneous vaccination of guinea-pigs with a culture of a weakly virulent pseudotuberculosis strain was capable of producing in the animals a resistance to a fairly high dose (50 DLM) of a virulent plague culture.

2. This resistance was considerably more marked in thrice vaccinated animals than in those given single administrations of the pseudotuberculosis strain.

3. Single administrations of the pseudotuberculosis strain were less efficacious than such of the vaccinal plague strain 17. Three times repeated vaccinations with this and the pseudotuberculosis strain gave approximately identical results.

4. The morbid findings in guinea-pigs which after immunization with the pseudotuberculosis strain had been challenged with a virulent plague culture resembled in general those in the animals which had been immunized with the vaccinal plague strain 17, but differed in some respects by showing appearances characteristic for pseudotuberculosis.

5. The present observations confirm the presence of common antigens in plague and pseudotuberculosis bacilli and suggest that strains of the latter organisms might be useful for the manufacture of chemical anti-plague vaccines.

- 14) Krupenina, V. I., Disturbances of the function of external respiration in white rats under the influence of the plague toxin. Pp. 178-185.

The intraperitoneal administration of small doses of the plague toxin (autolysate of the EV strain) leads to an intensification of the respiratory functions manifested by an acceleration of the respiratory rhythm, an increased ventilation of the lungs as well as by an increase of the oxygen consumption and the output of carbon dioxide. Large toxin doses produce a respiratory unsufficiency manifested by an increased frequency of the respiration, a lowered ventilation of the lungs and a decrease of the oxygen consumption and the respiratory co-efficient.

In the agonal period the respiratory center becomes affected or even ceases to function.

- 15) Osipenko, I. I., A pathomorphological characterization of the action of the plague toxin on the body. Report I. Pp. 186-195.

The concluding paragraph of this article, the contents of which do not lend themselves to the purpose of a brief review, states that the pathological processes produced in experimental animals through the plague toxin show a

Selected Abstracts-III/36

considerable similiarity to the appearances met with in experimental plague. A study of the histochemical changes produced by the plague toxin might, therefore, be useful for an understanding of the mechanism of infection with P. pestis.

The reference list attached to this article enumerates 14 papers by Soviet authors and 17 published by foreign observers.

- 16) IArumiuk, G. A., Observations on the fibrinolytic activity of plague and pseudotuberculosis bacilli. Pp. 196-201.

The author of this brief, but, well documented article, which must be studied in the original or in a translation by those interested in the subject of its text, arrived at the following conclusions:

- "1. A fibrinolytic activity is one of the fairly constant properties of P. pestis.
2. The fibrinolytic activity of virulent and avirulent plague strains is identical. No correlation exists between the fibrinolytic activity and the virulent of the strains.
3. The pseudotuberculosis bacillus shows no fibrinolytic activity.
4. Tests for fibrinolysis can be used as one of the methods to differentiate between plague and pseudotuberculosis bacilli."

- 17) Khundanov, L. E. et al., Comparative study of the efficacy of antibiotics in the treatment of experimental plague. Pp. 213-215.

According to this brief note out of the 9 antibiotics studied mycerin, colimycin, streptomycin, tetracycline and oxytetracycline proved most effective for the treatment of (? subcutaneously) plague-infected white mice. Monomycin and polymixin proved less potent, erythromycin and bicillin ineffective.

- 18) Vasil'eva, Z. I. and Trofimenko, N. Z., Determination of the dehydrase activity as a method for the rapid control of the presence of viable organisms during the process of vaccine manufacture. Pp. 216-219.

Selected Abstracts-III/37

The authors of this brief, but, well documented note summarized that

"the determination of the dehydrase activity can be used as a means of control for the presence of viable organisms in the process of manufacture of live plague vaccines with the aid of the submerged method of cultivation. Advantage may be taken for this purpose of substances on which P. pestis exerts an energetic dehydrase activity, particularly serin and glucose. Since serin is expensive and not always available, glucose appears to be preferable."

The authors quoted papers by (a) Domaradskii et al. "The dehydrases of P. pestis and P. pseudotuberculosis," Izvest. Irkutsk. protivochumn inst. 18 (1958) and (b) Srikantan et al., Indian J. med. Res. 45 (1947) 4: 467.

- 19) Trofimenko, N. Z. et al., Media prepared from acid hydrolysates of blood for the preparation of anti-plague vaccines. Pp. 220-224.

Fluid media prepared from hydrolysates of blood proteins were found suitable for the production of live anti-plague vaccines.

- 20) Lkham Suren: Experience of marmot poisoning in the plague epizootic of Mungu-Mort' Somon. Pp. 368-369.

This note describes a campaign successfully conducted against the tarabagans of a plague-affected locality in Mongolia with the aid of chloropicrin.

- 21) Demin, E. P., Some observations on the action of motorcar exhaust gases on the Mongolian rat-hares. Page 370.

On account of his favorable experiences the author recommended the cheap and expedient method of treating rodent burrows with the exhaust gases of motorcars.

- 22) Mironova, L. P., Susceptibility of laboratory animals (guinea-pigs and white mice), Mongolian gerbils and Brandt's mice to pasteurella infection. Pp. 109-112.

The presence of pasteurellosis in Transbaikalia has been established in Transbaikalia by Timofeeva and her

Selected Abstracts-III/38

co-workers (Irkutsk Plague Report 20, 1959) in tarabagans and their fleas, Daurian rat-hares and badgers, but information on the experimental susceptibility of the various species to this infection was incomplete. Studying this problem, the author found guinea-pigs and white mice, particularly the former, susceptible to pasteurellosis. The Mongolian gerbils were during spring and autumn as susceptible as the guinea-pigs (LD₅₀ less than 5 organisms) but in summer less susceptible than the white mice (LD₅₀ 298,500 organisms as against 275,000 organisms in the case of the mice). Brandt's mice, tested in autumn, proved as susceptible as the guinea-pigs.

- 23) Letov, G. S., The Gobi-Altai vole - a new rodent species in the USSR fauna. Pp. 278-284.

This article deals with a new rodent species of potential epizootological importance - Alticola barashkin Ban. (see A. G. Bannikov, Dokl. Akad. Nauk SSSR 56 [1947] No. 2).

- 24) Letov, G. S., Materials on the systematics, distribution and ecology of the mountain voles in Tuva. Pp. 285-295.

The species or subspecies dealt with in this article are Alticola argentatus semicanus Gl. Allen; Alticola barashkin Ban.; Alticola argentatus tuvinicus Ogn.; Alticola (Platicranius) strelzovi strelzovi Kastsch.

- 25) Leont'ev, A. N., Population studies on the Mongolian gerbils with the aid of a tagging method. Pp. 296-302.

The authors used for his studies on the Mongolian gerbils (Meriones unguiculatus) the method of clipping the toes of the animals in different combinations. The results he obtained cannot be briefly reviewed.

Articles on rodents and ectoparasites quoted by title

- 26) Demin, E. P., Observations on the biology of the Mongolian rat-hares. Pp. 303-307.
- 27) Tupikova, N. V. et al., Local distribution and areal of the long-tailed suslik in the Altai. Pp. 308-315.
- 28) Shkilev, V. V., Materials regarding the multiplication of the eastern voles in the Primor'e (Primorsk Krai). Pp. 316-327.

Selected Abstracts-III/39

- 29) Zonov, G. B., Some observations on Alticola strelzovi. Pp. 328-331.
- 30) Zhigmidiin Demberil: Distribution of the grey rat in the Mongolian People's Republic. Pp. 332-337.
- 31) Zhovtyi, I. F. et al., Observations on the ectoparasites of the bats in south-east Transbaikalia and the adjacent raions of the Mongolian People's Republic. Pp. 338-343.
- 32) Prokop'ev, V. N. and Dubovnik, V. I., Detection of the flea of wild birds Ceratophyllus vagabundus and of C. gallinae on chicken. Pp. 366-367.
- 33) Emel'ianova, N. D. and Kozlovskaya, O. L., Contributions to the study of the ixodes ticks of the rodents in the Khabarovsk Krai. Pp. 349-353.
- 34) Emel'ianova, N. D. and Koshkin, S. M., Description of the larvae and nymphs of Ixodes angustus Neum., 1899 and some data on their biology. Pp. 344-348.
- 35) Goncharova, A. A. and Buiakova, T. G., Ticks of the family Haemogamasidae (Parasitiformes, Gamasoidea) in Eastern Siberia. Pp. 354-365.
- 36) Peshkov, B. I. et al., A tularemia epizootic in water-rats in the environs of the town of Yakutsk. Pp. 49-57.

The authors concluded their description of the manifestation of tularemia in Yakutsk in 1960 by stating that

"1. The water-rat is the most usual and most widely spread rodent in the river valleys of Central Yakutia. Its population density on the various islands varies from a few individuals to 120 animals per hectare. In the floodlands of the Lena River M. econemus, M. gregalis, C. undulatus and musk-rats are encountered. These, though not numerous, are permanent residents of the islands.

2. The water-rats multiplied actively in 1960. 98% of the females took part in this process and the number of embryos per pregnant female was equal to 8.8.

Selected Abstracts-III/40

3. The tularemia epizootic took place exclusively among the water-rats. 28 tularemia strains were isolated--10 from trapped water-rats, 5 from carcasses of this species, 8 from mosquitoes, 3 from gnats, one from a gamasid and one from water.

4. The human attacks were mainly related to the bites of diptera. More than 90% of the patients suffered from the ulcero-bubonic form of tularemia. Infections took place mainly at the time of the hay-harvests, collection of berries and catching of fish."

- 37) Solodkaia, A. D. et al., Experimental tularemia in tarabagans. Report I. Pp. 58-62.

Because of their observations, the details of which must be studied in the original or in a translation, the authors came to the conclusion that the possibility of a tularemia infection of the tarabagans under natural conditions could not be excluded.

- 38) Balabkin, A. K., Observations on the susceptibility of the Mongolian gerbil to experimental tularemia infection. Pp. 63-69.

The author found that the Mongolian gerbil (Meriones unguiculatus M. Edw.) was highly susceptible to experimental tularemia infection and believed therefore that this animal could become the source of massive manifestations of the disease.

- 39) Kolesnik, V. S., Observations on the pathomorphology of experimental tularemia in the tarabagan. Pp. 70-77.

This careful study can be quoted by title only.

The author noted that on two occasions tularemia cultures had been isolated from tarabagans under natural conditions. In both instances, however, the animals appeared to be healthy and no abnormal findings could be detected post mortem.

- 40) Vashkov, V. I., Remarks on the history of the production of the live anti-tularemia vaccine. Pp. 371-373.
- 41) Olsuf'ev, N. G. et al., A contribution to the history of the production of the live anti-tularemia vaccine. Pp. 374-378.

Selected Abstracts-III/41

As stated in the first of these two reports, in a statement published in 1959 in the 21st volume of the Irkutsk Plague Reports Makarov had maintained that Gaiskii alone had been responsible for the creation of the live anti-tularemia vaccine while El'bert merely claimed to have taken part in this work. The same accusation was also made in a report by Makarov and Kosmachevskii, wherein it was also upheld that Olsuf'ev and Rudnev had erred when giving credit for this work in their text book to both El'bert and Gaiskii.

A careful consideration of this matter by a commission appointed by the All-Soviet Society of Microbiologists, Epidemiologists and Infectionists as well as by Olsuf'ev and his colleagues (M. M. Faibich and V. P. Motornaia) fully disproved the claims made by Makarov and Kosmachevskii. As stated in conclusion of the article by Olsuf'ev and his associates

"Studying the results of the joint labors of B. Ia. El'bert and N. A. Gaiskii in 1932-1936 and also their subsequent work one must consider the merits of these two authors in the creation of the live tularemia vaccine as of equal value."

- 42) Pinigin, A. F. and Petukhova, O. S., Brucellosis in the reindeers. Pp. 78-85.

Concluding their well documented article the two authors stated that

"As can be gathered from the available literature, brucellosis among the reindeers is fairly wide-spread in Eastern Siberia and represents a serious danger not only for the further development of this branch of animal breeding but also for the health of the people.

The medical and veterinary workers are faced with the extraordinarily important task of engaging in the immediate future in a more profound study of the problems related to reindeer brucellosis."

- 43) Pinigin, A. F. et al., Observations on reindeer brucellosis in the Taimyr National Okrug. Pp. 86-93.

Selected Abstracts-III/42

This well documented article also emphasizes the danger represented by the presence of brucellosis among the herds of domesticated reindeers and expresses the fear that the free-living animals of this species might become infected.

- 44) Golosov, I. M. and Zabrodin, V. A., Results of a study of brucellosis among the reindeers. Diagnosis and fight against the infection. Pp. 94-103.

This article can be quoted by title only.

- 45) Gudoshnik, A. N., Observations on supplementary reservoirs of brucellosis under the conditions of the animal-breeding farms in the southern raions of the Omsk Oblast. Pp. 104-108.

Though the domestic animals form the main reservoir of brucellosis, in the fight against this infection attention must be paid also to anti-rodent and anti-tick campaigns.

- 46) Khundanov, L. E. and Azarginova, F. S., Importance of the various antigens of V. cholerae for the production of immune sera. Pp. 202-207.

Concluding their article the authors stated that

1. Out of the antigens studied the highest agglutinating properties were shown by the live antigens; the OH antigen proved somewhat less effective and the properties of the somatic O antigen were considerably lower.

2. The best immunizing properties among the antigens used were shown by the heat-killed OH antigen.

3. The exclusion of the flagellar from the OH antigen lowers the immunological efficacy of the preparation.

4. Antigens prepared from virulent cultures possess weaker immunizing properties than the heat-killed OH antigen.

Selected Abstracts-III/43

5. The immunizing properties of the antigens studied are not related to the agglutininogenicity of the antigens.

- 47) Khundanov, L. E. et al., Experience of preparing dry cholera-diagnostic sera. Pp. 208-209.

As described briefly in this note, lyophilization of cholera-diagnostic sera gave satisfactory results.

- 48) Kuptsevich, E. I. et al., Experience on the use of anti-cholera gamma-globulins as diagnostic preparations. Pp. 210-212.

The authors found that "the gamma-globulins of cholera-diagnostic sera are endowed with strictly specific properties which are preserved even after prolonged storage (5 years)."

- 49) Sinkilev, V. V. et al., Contributions to the zoological and parasitological characterization of a focus of encephalomyelitis. Pp. 127-132.

This description of observations made in Yakutia cannot be briefly reviewed.

70. Izvestiia Irkutskogo gosudarstvennogo nauchno-issledovatel'skogo protivochumnogo instituta Sibiri i Dal'nego Vostoka, Volume 23 (1960):

- 1) Letov, G. S., Some remarks on the structure of the plague focus in the north-eastern Khangai. Pp. 3-16.

This article which deals with a plague focus in the Mongolian People's Republic cannot be briefly reviewed. It deserves, however, the close attention of workers interested in the ecology and control of wild rodent plague. The author expresses belief in the existence of long-lasting microfoci of the infection, the detection of which might permit an eradication of plague in the areas in question.

- 2) Emel'ianova, N. D. and Korotaeva, A. V., Could ticks of the species Dermacentor nuttalli be of importance in the plague epizootics? Pp. 17-18.

The authors stated in the concluding paragraph of this note that

"Our limited experiences with D. nuttalli showed a localization of P. pestis in the intestinal tract of the female ticks and in the salivary glands and the genitalia of the males, the transmission of the infection by males repeatedly fed on guinea-pigs and also the possibility of a preservation of the plague bacilli during the metamorphosis from the larval into the nymph stage. All this indicates that D. nuttalli might be of importance in the maintenance of plague enzootics under natural conditions--a possibility deserving further study."

- 3) Timofeeva, L. A. et al., A contribution to the problem of stabilization of vaccinal plague strains. Pp. 58-55.

The conclusions reached through this well documented study were that

1. The methods hitherto used for the stabilization of the biological properties of vaccinal plague strains (drying sub vacuo, cultivation in chick embryos or in medium containing tyrode solution and serum to which organ parts of guinea-pigs had been added), do not guarantee full success.

2. The best method is that of drying sub vacuo, followed by storage at low temperatures.

3. The method of passing the vaccinal strains through developing chick embryos markedly lowers the residual virulence, the invasive power and, particularly, the immunogenicity of the vaccinal organisms.

4. Cultivation in the above mentioned serum-tyrode solution medium is nearly as effective as lyophilization.

5. The method of increasing the residual virulence of the vaccinal organisms through guinea-pig passages following cultivation of the strains on media containing 0.25% gly-cocoll did not prove uniformly successful.

- 4) Domaradskii, I. V. et al., Contribution to the problem of immunization against plague pseudotuberculosis bacilli. Pp. 67-73.

The attempts of the authors to use live pseudotuberculosis cultures for the purpose of immunization against plague gave encouraging results.

- 5) Kolesnik, R. S. et al., Characterization of the pathogenic properties of some pseudotuberculosis strains. Pp. 75-79.

This study, made with the strains used by Domaradskii and his associates (see the preceding review) can be quoted by title only.

- 6) Domaradskii, I. V. et al., Acid meat hydrolysates for the growth of P. pestis. Pp. 86-89.

The fluid media described by the authors of this note appeared to be suitable for the purpose of vaccine manufacture.

- 7) Domaradskii, I. V. et al., Action of the plague toxin on some functions of the liver of white mice. Pp. 90-92.

Summarizing their findings, the authors of this note stated that

"The administration of plague toxin (autolysate of a 2-days old agar culture of the EV strain grown at 28°C and passed through a Berkefield filter after 3 weeks' storage at the same temperature and centrifugation) to white mice leads to a considerable disturbance of their liver functions, manifested by a lowering of the arginase activity, suppression of the endogenous respiration and prolongation of the prothrombin time. The capability of the liver tissue to acidify thyrosin undergoes no change during this process."

- 8) Domaradskii, I. V. et al., Observations on the synthesis of alanine from pyrrolic acid and ammonia salts by sections of the liver of healthy mice and mice treated with P. pestis toxin. Pp. 93-95.

According to these observations,

"The administration of plague toxin to white mice does not exert a perceptible influence on the capability of the liver sections to synthesize alanine from pyrrolic acid and ammonia salts. The same holds true of the consumption of pyrrolic acid by the liver."

- 9) Timofeeva, L. A. et al., Dry nutrient media prepared from the spleen, liver, brain and heart of cattle. Pp. 97-99.

Selected Abstracts-III/46

Dry media, prepared from the organs enumerated in the title of this note proved suitable for the cultivation of the EV and a virulent plague strain.

- 10) Trofimenko, N. Z. and Vasil'eva, Z. I., Influence of the rapidity of the disappearance of some amino-acids on the quantity of live microbial cells. Report II. Pp. 107-109.

The evidence adduced by the authors indicated that there was a definite correlation between the disappearance of some of the amino-acids from the media and the quantity of live plague bacilli present during cultivation under aeration.

Papers on rodents and ectoparasites (quoted by title)

- 11) Garbuzov, M. A., Observations on the methodology of accounting for the numbers of domestic rodents under urban conditions. Pp. 140-146.
- 12) Nekipelov, N. V., The Transbaikalian hamsters and some ecological peculiarities of the sub-family of hamsters. Pp. 147-164.
- 13) Peshkov, B. I., Observations on the nutrition of the Dzhungarian and Daurian hamsters. Pp. 165-170.
- 14) Shkilov, V. V., Peculiarities of the changes in the frequency of the field mice in the Primorsk Krai. Pp. 171-195.
- 15) Meiersen, M. N., Black rats in the village Erofei Pavlovich of the Amur Oblast. Pp. 196-201.
- 16) Firstov, N. I., The rodents of the raion of the Bratsk Hydro-Electric Station. Pp. 202-205.
- 17) Demin, E. P., Rodents of the Sailiugem mountain range and of the southern part of the Chikhacheva mountain range. Pp. 206-213.
- 18) Nekipelov, N. V., Observations on the biotypes and nutrition of the voles in the Transbaikalian steppes. Pp. 214-222.
- 19) Ol'kova, N. V., Comparative data on the structure of the gastrointestinal tract in some species of the Transbaikalian rodents. Pp. 223-235.

- 20) Belosliudov, G. A., A simplified cage trap for rodents. Pp. 236-238.
- 21) Gabruzov, M. A. and Kozlovskaya, O. L., Rodents and their ectoparasites of the town of Petropavlovsk (Kamchatka). Pp. 263-271.
- 22) Kozlovskaya, O. L. and Anikeev, I. K., Rodents and fleas of the Hebrew Autonomous Oblast. Pp. 272-277.
- 23) Violovich, N. A., Materials concerning the ectoparasite fauna of the grey rats of Sakhalin and the Kurile Islands. Pp. 250-256.
- 24) Prokop'ev, V. N. and Peshkov, B. I., The nest of the tarabagan as a habitation for its ectoparasites. Pp. 239-249.
- 25) Sychevskii, P. T., A new species of fleas of the forest voles, Ceratophyllus (Megabothris) bispinosus. Pp. 257-258.
- 26) Korotkova, G. B., Observations on the morphology of Wagnerina tuvensis. Pp. 259-262.
- 27) Zhovtyi, I. V. and Maksimova, E. D., Seasonal changes of the composition of the fleas in the nests of the Mongolian gerbils. Pp. 278-286.
- 28) Oglezneva, A. G., Supplementary data on the mammalian ectoparasites of western Transbaikalia. Pp. 287-291.
- 29) Tarasov, M. P., Fleas of the long-tailed suslik in the south-eastern part of Mongolian Altai. Pp. 292-299.
- 30) Kokliagina, A. T., Materials regarding the flea fauna of the Altai Krai. Pp. 300-311.
- 31) Pauller, O. F., The flea fauna of the Altai Krai. Pp. 312-315.
- 32) Alifanov, V. I., Materials concerning the study of the fauna of the Omsk Oblast. Pp. 316-322.
- 33) Zhovtyi, I. F., The principles and the methods of accounting for the numbers of the flea populations. Pp. 338-345.
- 34) Gorbacheva, L. A. and Demin, E. P., Observations on the zones of distribution of the Ixodes ticks in the Gorno-Altai Autonomous Oblast. Pp. 323-327.

Selected Abstracts-III/48

- 35) Korotkova, G. B. et al., Remarks on the trombiculid mites (Acariformes, Trombididae) of western Mongolia and the adjacent raions of Tuva and the Gorni Altai. Pp. 328-334.
- 36) Emel'ianova, N. D. and Gorbacheva, L. A., A new mite species, Trombicula schlugeri sp. n. Pp. 335-337.
- 37) Kir'ianov, G. I., Epizootology of tularemia in the Altai Krai. Pp. 19-23.

Tularemia was first recorded in the Altai Krai in 1939, but undoubtedly existed before that date. Bacteriological and ecological studies were started in 1949. As shown in a table, from 1949 to 1958 fifty-nine tularemia strains were isolated, including 21 from water-rats, 14 from other rodents, one from a horse, 9 from Ixodes ticks and 14 from water samples.

- 38) Mykharova, L. S., Frequency of the rodents, the carriers of tularemia, in the geographical zones of the Kemerovo Oblast. Pp. 133-139.

The contents of this ecological study do not lend themselves to the purposes of a brief review. Owing to the progress in building activities and in the cultivation of virgin territories the population density of the water-rats decreased within recent years. The author expresses the hope that further progress in these directions will lead to a disappearance of tularemia from a part of the presently existing foci.

- 39) Pinigin, A. F., Epidemiology of brucellosis in Eastern Siberia and the Far East. Pp. 24-29.

The conclusions reached by the author were that

1. Brucellosis was first recorded in Eastern Siberia in 1930, in the Khabarovsk and Primorsk kraia in 1933.

2. The importation of the disease from western raions stood in connection with cattle imports to improve the breeds of the local races.

3. Owing to differences in the economic situation brucellosis is prevalent in the cattle herds in the Far East and in the Iakutsk ASSR, among the sheep in Eastern Siberia.

- 40) Pinigin, A. F. et al., A dry nutrient medium for the diagnosis of brucellosis. Pp. 100-106.

The authors found that media prepared from dry agar could be used successfully for confirming the diagnosis of brucellosis in man and in domestic animals. Accordingly they recommended the large-scale manufacture and use of such media.

- 41) Pinigin, A. F. and Petukhova, O. S., Observation on a new type of brucellosis. Pp. 346-347.

The authors of this article postulate the existence of a new independent type of brucellae, Brucella rangiferi, responsible for the infection of reindeers.

- 42) Vasenin, A. A. et al., Preliminary data on the study of tick-borne encephalitis in the Irkutsk Oblast. Pp. 45-47.

As stated in this note, the isolation of a strain of the tick-borne encephalitis virus from an Ixodes persulcatus tick in a raion of the Irkutsk Oblast confirmed the existence of the infection in this area. Inasmuch as serological examinations in man and animals in 15 raions gave positive results, tick-borne encephalitis is evidently widespread in the oblast. Further studies on the ecology of the disease are therefore urgently needed.

- 43) Ambarnikov, I. M. et al., Study of the virus strains isolated in the tick-borne encephalitis foci of the Primor'e. Pp. 48-55.

The conclusions reached by the authors of this carefully conducted study were that

"1. The high incidence of tick-borne encephalitis in the taiga area of the Primorsk Krai, especially in the Chuguevsk Raion, in 1956-1957 and also the isolation of the causative virus from ticks (I. persulcatus-10 strains; Haem. concinna-1 strain), from the brain of a vole and a young blackbird indicate a wide dissemination of the virus and the existence of a natural focus of the infection.

2. Out of the 20 strains of the virus isolated in the foci of the Primor'e, 14 proved

Selected Abstracts-III/50

to be identical with the tick-borne encephalitis strain No. 30, whereas the remaining strains were found to be serologically different from the type strain and need further study."

- 44) Khramova, V. S., Contributions to the problem of the incidence of infectious nephroso-nephritis in the Amur Oblast. Report III. Pp. 56-57.

As stated in this brief note, epidemic nephroso-nephritis is apparently widespread in the Amur Oblast.

71. Trudy armianskoi protivochumnoi stantsii (Collected Papers of the Armenian Anti-Plague Station) Vypusk. I, Erevan (1960):

- 1) Pastukhov, B. N., State of the natural plague foci in the USSR in 1958 and tasks of the anti-plague organizations. World distribution of plague during recent times. Pp. 5-16.

As stated in the introduction to this survey, plague showed after a lull during the preceding quinquennium in 1957 and 1958 a renewed activity in the Central-Asian and Transcaspian foci as well as in part of the Pri-Caspian focus. The number of plague cultures isolated during the last five years amounted to 4,995 of which 11 were derived from susliks, 200 from marmots, 1,620 from gerbils, 180 from other rodents and 2,984 from ectoparasites. Acute epizootics were recorded in 1958 in the Central-Asian and Transcaspian foci as well as in the Gur'ev Oblast of the Pri-Caspian focus. The number of plague cultures isolated during that year amounted to 1,638, of which 1,081 were obtained in the Central-Asian focus, 176 in Transcaucasia and in Pri-Caspia.

As can be gathered from the detailed statements furnished by the author, the plague situation in 1958 was particularly serious (a) in the Gur'ev Oblast where a widespread epizootic occurred among the domestic mice; (b) in the Taldy-Kurgan and Alma-Ata oblasts south of the Balkhash Lake, where 567 plague cultures were isolated from large and tamarisk gerbils and their ectoparasites.

According to preliminary data the number of plague cultures isolated during the first 11 months of 1959 was as follows:

Selected Abstracts-III/51

<u>Locality</u>	<u>Number of Cultures</u>	<u>Remarks</u>
Kazakh SSR(including the Alma-Ata and Gur'ev oblasts)	752	Most of the cultures were obtained from big gerbils and their fleas.
Azerbaidzhan SSR	55	Including 17 cultures from <u>Meriones erythrourus</u> and 33 from fleas.
Armenian SSR	5	-
Turkmenian SSR	4	-
Kirghiz SSR	67	32 each from marmots and from fleas, 3 from ticks.

- 2) Mkrtchian, S. R., Report on the activities of the Armenian Anti-Plague Station during the period 1941-1958. Pp. 17-29.
- 3) Zil'fian, V. N., Results of the scientific research work of the Armenian Anti-Plague Station for the years 1948-1958. Pp. 31-41.

These two summaries can be quoted only by title.

- 4) Zil'fian, V. N., Chronological table of the plague epidemics in the territory of Transcaucasia. Pp.,43-49.

This article which tabulates the plague epidemics recorded in Transcaucasia from A. D. 363 to 1920 cannot be briefly reviewed.

- 5) Babenyshev, V. P. et al., Plague epizootics in Armenia. Pp. 51-78.

The main conclusions reached by the authors of this well documented study were:

Selected Abstracts-III/52

1. The presence of plague epizootics in the north-western parts of the Armenian SSR was first established in 1958.

2. Plague epizootics in the territory of the Leninakan Plateau have been observed among 4 species of rodents: Microtus arvalis; M. socialis; Mus musculus and Cricetulus migratorius.

Out of 30 species of rodent fleas P. pestis has been isolated only from Ctenophthalmus teres.

All plague strains isolated acidify glycerol and show nitrifying and denitrifying properties, thus belonging to the Variatio marmotae of P. pestis.

3. The 1958 plague epizootic lasted from October 23 to December 11, being present in three localities ("points") of the Leninakan Plateau, the slopes and foothills of the Dzhavakhat'sk mountain range, the valley of the Pambak mountain range and the central plains.

4. In spite of a high population density of the small murines, especially of M. arvalis, the epizootic did not become widespread. Possibly the presence of the infection only in Ct. teres, which abounds solely in the nests of M. arvalis, limited the spread of plague.

5. Further investigations are necessary to establish whether in addition to the above mentioned localities plague epizootics exist also in other parts of Armenia.

- 6) Akhundov, M. G. et al., Characterization of the course of the plague epizootics in Azerbaidzhan from 1953 to 1958, experiences of the fight against them and prospects of an eradication of the natural plague focus. Pp. 79-101.

As can be gathered from this article, the number of plague strains isolated in the Azerbaidzhan SSR during the period from 1953 to 1958 amounted to 580. These positive results were obtained from the following rodent and flea species:

Selected Abstracts-III/53

<u>R o d e n t s</u>		<u>F l e a s</u>	
<u>Species</u>	<u>No. Found Infected</u>	<u>Species</u>	<u>No. Found Infected</u>
<u>Meriones</u> <u>erythraurus</u>	298	<u>Xenopsylla conformis</u>	148
Jerboas	5	<u>Nosopsyllus laeviceps</u>	77
<u>Microtus</u> <u>arvalis</u>	7	<u>Stenoponia insperata</u>	9
<u>Cricetulus</u> <u>migratorius</u>	6	<u>Rhadinopsylla ukrainica</u>	4
<u>Mus musculus</u>	3	<u>Nosopsyllus consimilis</u>	3
		<u>Mesopsyllus apsheronica</u>	2
Forest mice	1	<u>Ctenophthalmus secundus</u>	1
		Undetermined	10
<u>Total</u>	320	<u>Total</u>	254

N. B. Moreover one culture was isolated from a hare and 5 from ticks, bringing the grand total to 580.

- 7) Bulakh, O. S. and Bakhaeva, Sh. A., Characterization of the plague strains isolated in Azerbaïdzhan. Pp. 103-116.

The 146 plague strains examined by the authors all acidified glycerol; 131 of them did not reduce nitrates to nitrites, thus belonging according to the classification of Tumanskii (Zh. mikrobiol. [1947] 6: 3-7) to the Variatio citelli of P. pestis, whereas 15, forming nitrites, belonged to the Variatio marmotae. Virulence tests made at varying, often prolonged intervals after isolation with 40 of the strains showed that 27 of them had remained virulent, whereas 13 had become avirulent. All the avirulent strains showed immunogenic properties.

- 8) Tumanskii, V. M., A new method of plague diagnosis with the aid of bacteriophages. Pp. 117-126.

The author found that addition of small quantities of specific plague bacteriophages at the time when agar plates were implanted with plague-suspect materials gave rapidly positive results.

Selected Abstracts-III/54

- 9) Shiraev, D. T. et al., Contribution to the problem of the use of cortisone in the survey work of plague laboratories. Pp. 137-147.

As described by the authors, the use of cortisone-treated mice for the laboratory diagnosis of plague in rodents and fleas gave disappointing results under actual conditions.

- 10) Avanian, L. A., Action of iron on the growth of P. pestis. Pp. 149-160.

The authors of this article, in which besides their own observations those of numerous other workers are discussed, summarized that

"1. An increased iron content in the meat-peptone media plays an important role in the physiology of the nutrition of P. pestis; the iron in the media is intensively utilized by the microbes, it increases the catalase activity and produces typical growth from small inocula (single organisms).

2. Media with an increased iron content do not require the addition of growth stimulators (blood, sodium sulfite, etc.), what is an advantage for practical work and useful in diagnostic tests for plague."

- 11) Avanian, L. A. and Gubina, N. E., Action of iron on the virulence of P. pestis. Pp. 161-170.

As the two authors found, the administration of the iron salt $\text{FeSO}_4 \cdot 7 \text{H}_2\text{O}$ to guinea-pigs at the time of infection of the animals with weakly virulent plague strains increased the virulence of the strains.

- 12) Bocharnikov, O. N. and Akhundov, N. G., Comparative evaluation of the efficacy of gassing and baiting of Meriones erythraurus for suppression of plague epizootics under the conditions of Azerbaïdzhan. Pp. 269-300.

As can be gathered from this article, the details of which must be studied in the text, treatment of the gerbil burrows with a mixture of cyanplav and hexachlorade followed by the distribution of poison baits proved most effective.

Selected Abstracts-III/55

- 13) Zil'fian, V. N. and Aleksanian, V. A., Naturally focal diseases in Armenia. Pp. 269-300.

This exhaustive and well documented article, dealing inter alia with the problem of plague, can only be mentioned by title.

- 14) Shakhrimanian, V. O. et al., Species composition, population density and distribution of the rodents in Armenia and importance of these animals in the epidemiology of specially dangerous diseases. Pp. 309-321.
- 15) Oganesian, V. V., Remarks on the methodology of observation of the nests of Microtus socialis, M. arvalis and the mountain mole-rats under the conditions of the Armenian SSR.

These two articles can be quoted by title only.

- 16) Flegontova, A. A. and Malafeeva, L. S., Activity of the fleas of the genus Ceratophyllus in the transmission of plague. Preliminary communication. Pp. 127-135.

This article, which according to the nomenclature adopted by Western workers deals with the fleas of the genus Nosopsyllus, cannot be briefly reviewed.

- 17) Avetisian, G. A. et al., Materials concerning the flea fauna of Armenia. Pp. 323-340.

Concluding their test, the authors stated that

"1. Up to the present 63 flea species have been recorded in Armenia of which 6 (Chaetopsylla rothschildi, Paraceras melis, Ceratophyllus frigoris, C. turbidus, Hystrihopsylla talpae and Stenoponia ivanovi) have been observed for the first time by us.

2. On the susliks and in their nests 9 flea species are found of which 3 (Neopsylla setosa, Ceratophyllus transcaucasicus and Oropsylla ilovaiskii) are specific for these rodents.

3. In the Ararat valley three species of gerbils are encountered - Meriones shawi tristrami, M. vinogradovi and M. persicus. On the first of these rodents 7 flea species are encountered, of which Xenopsylla conformis,

Selected Abstracts-III/56

Ceratophyllus iranus, Rhadinopsylla cecidestis and Stenoponia insperata are specific. On M. persicus one finds 7 flea species of which are specific X. conformis, C. lamellifer arax, C. iranus and Rh. cecidestis.

4. On M. shawi tristrami and in their nests in the northern mountain forest district C. con-
similis and Cetnophthalmus secundus prevail. No fleas specific to the gerbils were found.

5. In localities jointly inhabited by susliks, gerbils and other rodent species close contact leads to a mass exchange of ectoparasites among the different mammalian species."

- 18) Zil'fian, V. N. et al., Observations on the bird fleas of Armenia. Pp. 345-361.
- 19) Oganesian, V. V., The fauna and some ecological problems of the fleas of north-western Armenia. Pp. 363-382.

These two well documented articles can be quoted by title only.

- 20) Mnatsakanian, A. G. et al., A water-borne tularemia outbreak in the village Shamlug of the Alaverdi Raion. Pp. 301-308.

As described in this article, the outbreak of tularemia taking place in the summer of 1956 in Shamlug and involving 54 persons was due to the consumption of untreated waterworks water.

- 21) Ovasapian, O. V. and Oganesian, V. V., The gamasid ticks of the northern and north-western raions of Armenia and results of their laboratory investigation. Pp. 403-409.

The author found Haemogamasus nidi naturally tularemia-infected and noted that

"In the Kalinino Raion of Armenia the isolation of a culture of B. tularense from H. nidi was the signal for thorough surveys and led to the observation of a tularemia epizootic among M. arvalis in a locality where this infection had been hitherto unknown."

- 22) Ogandzhanian, A. M., Rodents, birds and reptiles as hosts of Ixodes ticks under the conditions of the Armenian SSR. Pp. 383-389.
- 23) Chubkova, A. I., Contribution to the problem of the fauna of bloodsucking ticks of the town of Erevan and the raions of the Sevan Basin. Pp. 391-401.
- 24) Zil'fian, V. N. et al., Observations on the fauna of bird ticks in Armenia. Pp. 463-476.

These three articles are quoted by title.

- 25) Ter-Vartanov, V. N. et al., Distribution of brucellosis in the zone of the Caucasus and Transcaucasia and methods of the fight against this infection. Pp. 183-196.

The authors of this carefully conducted study stressed the necessity for large-scale action against brucellosis regardless of the political boundaries of the different republics.

Besides conducting anti-brucellosis campaigns among the cattle, sheep and goats it was also necessary to pay attention to a fight against the infection in pigs.

For the prophylaxis of human brucellosis it was essential to implement vaccinations and general sanitary measures in accordance with the local epidemiological conditions.

- 26) TSaturian, F. A., Observations on the specific prophylaxis of human brucellosis in some raions of the Armenian SSR. Pp. 235-245.

As can be gathered from this well documented study, the incidence of human brucellosis in the Armenian SSR during the period from 1952 to 1959 was as follows:

	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>
Absolute incidence	322	475	348	402	301	379	591	350
Incidence per 10,000 population	2.2	3.2	2.3	2.5	1.8	2.3	3.5	2.0

Selected Abstracts-III/58

During the period from 1954 to 1959 510,435 persons were vaccinated in Armenia with the live Br. abortus 19-BA vaccine, while 318,743 persons were re-vaccinated.

In order to prove the value of the vaccinations the authors mentioned that in a group of 2,386 persons who had been immunized against brucellosis, only 2 (1.5%) contracted the disease, whereas in an unvaccinated control group of 287 persons 14 individuals (4.9%) showed positive serological reaction and 8 of them also clinical signs of brucellosis.

- 27) Drozhevskina, M. S., New methods for the bacteriological diagnosis of brucellosis. Pp. 259-268.

To improve the laboratory diagnosis of brucellosis, the author recommended the use of (a) media to which brucellosis anti-phage serum had been added; (b) V + W sera for the identification of freshly isolated brucellosis strains and (c) a polyvalent Vi + O brucellosis phage with the aid of which it was possible to identify not only typical brucellosis strains but also many of the aberrant strains.

The anti-phage serum and the polyvalent phage were produced and issued by the Rostov Anti-Plague Institute and it was expected that the V + W serum would soon be available for practical purposes.

- 28) Zakarian, A. V., Brucellosis in the Armenian SSR. Pp. 198-205.
- 29) Noramirian, A. V., Data on the epizootological and epidemiological brucellosis situation in some raions of the Armenian SSR. Pp. 207-219.
- 30) Ananian, E. L. and Davtian, G. G., Contributions to the problem of the epidemiology and epizootology of brucellosis in the Kafan Raion of the Armenian SSR. Pp. 221-233.
- 31) Makarov, N. I. and Ziusin, A. S., Some practical problems of the epidemiology of brucellosis in the Georgian SSR and in the Azerbaidzhan SSR. Pp. 247-257.

These four articles can be quoted by title only.

- 32) Pastukhov, B. N., Report on the expedition of Soviet physicians to Pakistan to fight against cholera and smallpox. Pp. 411-417.

In this paper, the details of which must be studied in the original or in a translation, the author reported good results obtained through the use of cholera bacteriophage for therapeutic and prophylactic purposes.

- 33) Shekhikian, M. T. and Vartanian, A. A., Characterization of the water vibrios in the waters of the town of Erevan. Pp. 419-424.

As described in this article, vibrios were found to be constantly present in the open waterways of the town of Erevan but were absent in the waterworks water. The authors maintained that the majority of the water vibrio strains isolated in 1956 were agglutinated by cholera OH serum but never by cholera O serum. The 1957 strains, on the contrary, became well agglutinable by the latter serum even if they were not agglutinated by the OH serum. The strains isolated in 1958 proved positive in agglutination tests with both kinds of sera at titers from 1:25 to 1:100, occasionally at higher titers.

- 72) Trudy instituta "Mikrob" (Collected Papers of "Mikrob" Institute, Saratov) Vypusk 4, 1960:

- 1) Korobkova, E. I. et al., Development of the inhalation method of anti-plague immunization and study of the peculiarities of immunogenesis in this method. Pp. 3-31.

In the conclusions to this article which must be studied in detail by workers interested in the problem of plague immunization, Korobkova and her associates stated that

"Our investigations were made with a specially constructed atomizer which allowed emission of small aerosol particles, whose dimensions ensured their penetration into the respiratory passages. The air for inhalation entered under a pressure of 0.5 to 4 atmospheres. Owing to these methodological arrangements the inhaled organisms actually reached the deep parts of the respiratory passages and the lungs.... Examinations (of early sacrificed animals) clearly showed already 20 minutes

after inhalation the vaccinal microbes could be observed in cultures from the trachea and. . .the lobes of the lungs. They could remain there 3-5 days (in one case 6 days) after which period the lungs became free from the organisms. In cultures from the blood and the organs of the abdominal cavity the organisms could not be observed.... The organisms persisted longest in the conjunctiva of the eye - up to 10 days. Still, this long persistence in the conjunctiva did not determine the efficacy of the inhalation method of vaccination since the immunity became as intense in guinea-pigs the eyes of which had been protected against inroads of the infection as in animals the eyes of which remained uncovered during the inhalation of the vaccine."

The authors emphasized that, though after the inhalation of the vaccinal organisms remained mainly localized in the respiratory tract, a general resistance to plague infection began to develop from the moment of the administration of the vaccine. The immunization by inhalation produced first a non-sterile immunity which, after the disappearance of the vaccinal organisms, was followed by a phase of sterile immunity.

- 2) Korobkova, E. I., Phagocytosis in the acquired immunity against plague. Pp. 32-42.

The conclusions reached by the author were that

- "1. Phagocytosis represents the most constant and fundamental mechanism of protection of the body against plague infection.
2. The phagocytic reaction in actively immunized animals differs quantitatively and qualitatively from that in not immunized animals. In the latter only the first phase of phagocytosis--the ingestion of the organisms--becomes completed; the second phase--the digestion and disruption of the organisms--remains absent; on the contrary, the cellular elements of the not immunized animals becomes massively destroyed under the influence of the plague toxins.

3. In the process of active immunization against plague the cellular elements of the reticulo-endothelial system undergo a transformation and acquire the capability of neutralizing the plague toxin. As a consequence the intracellular ferments begin their second function - that of destroying the plague bacilli.

4. The phagocytic activity of the different categories of cells is not uniform in the immunized and not immunized animals. In the former phagocytosis is effected to a large extent by the polymorphonuclear leucocytes; in the latter a large number of monocytes becomes involved in the process.

5. In order to enhance the active immunity against plague it is indispensable to intensify the mechanisms exerting an inhibiting action on the microbes and causing their destruction. These goals are reached by the use of live plague vaccines."

- 3) Akimovich, V. V. and Dobrotsvetova, T. IA., Observations on the phagocytic reactions in experimental plague infection. Pp. 43-54.

Summarizing the results of their observations, the authors stated that virulent plague bacilli do not become phagocytized in the body of animals naturally susceptible to the infection. Only bacterial cells the virulence of which has become weakened fall prey to the phagocytic process.

In the course of plague infection the ability of the macrophages and of the polymorphonuclear leucocytes does not become markedly impaired even during the septicemic stage. However, the process of destruction of the bacilli becomes somewhat less intense at that time.

In experimental infections with P. pestis as well as with staphylococci one can observe a transformation of lymphocytes into macrophages showing a phagocytic activity.

- 4) Korobkova, E. I. et al., The problem of reconstruction of the bivalent live plague vaccine 1-17 through replacement of the strain 17. Pp. 55-63.

Selected Abstracts-III/62

The observations recorded in this article led the authors to recommend the use of the EV strain instead of the strain 17 for the manufacture of the live bivalent plague vaccine.

- 5) Bakrakh, E. E. et al., The use of the polysaccharide fraction of P. pestis as an allergen for the demonstration of the presence of an active immunity in guinea-pigs. Pp. 63-68.

As summarized by the authors, the polysaccharide fraction found useful as an allergen

"consisted of a complex of polysaccharides and polypeptides. The polysaccharide was composed of glucose, glucosamine and an unidentified sugar. With the aid of paper chromatography the following amino-acids could be detected in the polypeptides: cystine, aspartic acid, glutamic acid, lysine, threonine, alanine, glycocoll, tyrosine, tryptophan and leucine."

- 6) Derteva, I. I., Action of anti-plague serum on P. pestis in vitro and in the animal body. Report VI. Bacteriostatic action of the anti-plague serum. Pp. 69-75.

Commenting upon the results of her observations, the author postulated that it was not possible to observe a direct relation between the bacteriostatic action of the plague sera in vitro and their anti-infectious properties in experimental animals. The bacteriostatic properties seemed to depend upon individual peculiarities of the blood serum of the producers and it did not seem justified to ascribe the efficacy of the plague sera in vivo directly to their bacteriostatic action. Thus, the author maintained,

"In the mechanism of the passive immunity against plague other factors are of importance which limit a generalization of the infection and lead to a retention of P. pestis at the site of its invasion."

- 7) Vereninova, N. K. et al., Efficacy of combined immunization with live vaccines against plague, tularemia brucellosis and anthrax. Report II. Intensity of the immunity of combinedly vaccinated guinea-pigs against intratracheal infection. Pp. 76-81.

A 1959 article by Vereninova and her associates devoted to the same subject has been dealt with in an earlier abstract (see Abstract No. 73 of MS No. 2).

- 8) Vereninova, N. K. et al., Efficacy of combined immunization with live vaccines against plague, tularemia, brucellosis and anthrax. Report III. Observations on the length of immunity after the combined vaccination of guinea-pigs. Pp. 82-88.

In order to ascertain the length of time for which guinea-pigs remain immune after combined vaccination against plague, tularemia, brucellosis and anthrax, Vereninova and her colleagues worked with 189 animals which were first subcutaneously injected with 100 million doses of the STI anthrax vaccines and 10 days later with a trivaccine containing per ml (the immunizing dose) 1 billion each of plague bacilli and brucellae and 100,000 tularemia bacilli.

It was found that the guinea-pigs vaccinated in this manner were solidly immune against the four above enumerated infections for a period of 6 months. Most of the animals under test proved also immune against plague and brucellosis 12 months after the vaccination, while their resistance to tularemia and anthrax was found to have decreased at that time.

- 9) Korobkova, E. I. and Shaleva, A. F., Relations between the glycerol-positive and glycerol-negative strains of P. pestis. Pp. 100-108.

Summarizing the results of their observations, the authors of this important study stated that the property of acidifying glycerol-containing media was characteristic for the P. pestis strains isolated in the oldest plague foci in Central Asia and in Central Africa, where wild rodents are the reservoir of the infection. The glycerol-negative strains, met with mainly in the case of plague manifestations originating among the common rats, are presumably less ancient. It may be presumed a priori that a glycerol-acidifying strain was derived from wild rodents, a glycerol-negative strain from a focus where plague is entrenched among the common rats.

"Virulent and avirulent immunogenic plague strains," the two authors continued, "firmly retain their biochemical type acquired by them in the process of evolution, but the virulent strains are more stable in this respect. Virulent continental (i. e., glycerol-negative strains grown alone or in

Selected Abstracts-III/64

mixed cultures with glycerol-negative strains ferment glycerol within 2 or 3 days even if glycerol-negative organisms preponderate in the mixtures.

Virulent and avirulent immunogenic oceanic (i. e., glycerol-negative) P. pestis strains, if grown together with weakly virulent and non-immunogenic continental strains inhibit the property of the latter to ferment glycerol even when glycerol-positive colonies preponderate in the growths.

However, virulent continental strains, grown together with virulent oceanic strains ferment glycerol with the same intensity as when grown by themselves. This is the case even when only single microbes of a continental virulent strain admixed to an oceanic strain. Accordingly virulent oceanic strains do not inhibit the fermentation of glycerol by active continental plague bacilli."

Korobkova and her co-workers emphasized that in order to study the behavior of P. pestis in glycerol-containing media it was indispensable to start with growths obtained through single colony selection. In the opinion of these observers a change in the biochemical type indicated a "saprophytization" and a degradation of the immunogenic properties of the strains in question. Thus continental strains when becoming unable to acidify glycerol, lost simultaneously their virulence and immunogenicity and identical losses took place in the case of oceanic strains which became capable of fermenting glycerol.

According to still unpublished observations by Levina and her associates in the Western Kara-Kums, glycerol-positive and glycerol-negative strains may be found side by side during one and the same epizootic. Korobkova and her colleagues were of the opinion that

"The strains obtained in the Western Kara-Kums show the signs of organisms the biochemical type of which has not yet been established. In favor of this view speak

the facts of (a) a comparatively rapid transition of the glycerol-negative strains into glycerol-positive variants without a marked loss of their immunogenic properties; and (b) a rapid acquisition of the property of rhamnose acidification as established by Punskaa (Doklad na nauchnoi konferentsii Sredne-Aziatskogo protivochumnogo instituta, Alma-Ata, 1956).

- 10) Tumanskii, V. M. and Uriupina, N. V., Observations on the mechanism of the appearance of variants of P. pestis and their distribution in the plague foci. Pp. 109-115.

The conclusions arrived at by the authors of this article which like the preceding one must be studied in detail by workers interested in the bacteriology and ecology of plague, were as follows:

- "1. The cause of the manifestation of variants of P. pestis must be looked for in physiological peculiarities of the rodents serving as the fundamental reservoirs of the infection in nature.
2. Besides the ample reserve of fats and the anaerobic metabolism in the body of hibernating rodents one must take into account the marked drop of the temperature which is one of the most important factors conditioning a peculiar interrelation between the host ("macroorganism") and the causative organisms of the disease.
3. In the fat-rich body of hibernating rodents conditions are created for an adaptation of P. pestis to glycerol notwithstanding the absence of the ferment lipase in the latter. Still, in the body of such rodents P. pestis may become adapted to glycerol...as a result of the cleavage of the fat (during the process of its assimilation) into fatty acids and glycerol under the influence of the lipase present in the rodents themselves. In the body of non-hibernating rodents no similar conditions exist and therefore P. pestis circulating in the populations of rodents of the latter kind did not acquire the property of glycerol fermentation.

Selected Abstracts-III/66

4. It is impossible at present to find an explanation for the nitrifying and denitrifying properties of the plague bacillus; apparently one must look for their causation to differences in the protein metabolism of rodents harboring the three variants of P. pestis.

5. The distribution of these three variants in natural plague foci abroad is not fully elucidated since the strains isolated in some of the foci (United States, etc.) have been insufficiently studied. Still, it is known at present that the rat variety has been found in India, Indonesia, Madagascar, in all European port foci and also in the ports of other parts of the world. The marmot variety has been isolated in North and Northwest China and in Africa. The suslik variety has been isolated in Iran (Kurdistan) and in Turkey (Aksakal on the Syrian border).

6. In the USSR two of the varieties are met with--the marmot and the suslik varieties--and it has been possible to delimit the zones of their distribution in a fairly accurate manner.

7. The appearance in Turkmenia (1949-1950) of a small number of glycerol-negative plague strains endowed with nitrifying and denitrifying properties is apparently a manifestation of the variability of P. pestis due to its adaptation to a new host."

- 11) Tumanskii, V. M. et al., Study of the intra-species variability of the plague bacillus with the aim of directing the production of vaccinal strains. Pp. 116-120.

As described in this article, changes in the morphological, cultural and immunobiological properties of plague strains could be effected through their repeated passage through tyrode solution to which suspensions of a heat-killed EV culture and rabbit serum had been added.

- 12) Korobkova, E. I., Action of glycocoll on the plague bacillus. Report I. Pp. 121-125.

Korobkova found that the morphological and biological properties of the plague bacillus could be markedly changed through its cultivation on glycoll-containing agar. Side by side with the production of an acetylated polysaccharide cultivation on such media led to an increased toxicity and virulent of the strains.

- 13) Iurgina, Z. A., Capsule formation of the plague bacillus under the influence of some chemical substances. Pp. 126-127.

The author established that the capsule formation of P. pestis could be enhanced through its cultivation on solid media to which gelatin hydrolysate (obtained through tryptic digestion of a 10% gelatin solution), hydroxyacetic (glycollic) acid or sodium acetate had been added. The two first mentioned substances proved more effective than the last.

Under the action of these stimulators the capsule formation reached a maximum after 3-4 passages. Subsequent passages led to a decrease and, at the 7th passage, to a loss of the capsule formation.

- 14) Korobkova, E. I. et al., Difference between naturally occurring pseudotuberculosis strains and newly formed organisms obtained in the process of variability of P. pestis under bacteriophage action. Pp. 128-134.

Summarizing the results of their observations, the authors stated that the variants of P. pestis obtained by them were (a) in contrast to the pseudotuberculosis bacilli immotile; (b) avirulent for rabbits; (c) did not protect laboratory animals against infection with virulent pseudotuberculosis cultures and (d) according to their immunological properties stood nearer to the plague than to the pseudotuberculosis bacillus.

It is noteworthy that, as stated by the editors of the "Mikrob" Report in a footnote, several Soviet workers including IASHCHUK (see below) found that the pseudotuberculosis strains obtained by them from P. pestis were mostly motile and that some of them were virulent for rabbits.

- 15) Smirnova, E. I. et al., A virulent pseudotuberculosis strain obtained from a plague culture through the artificial action of a plague bacteriophage. Pp. 135-140.

As described by the authors, they obtained through the action of a plague bacteriophage on a plate culture of P. pestis a virulent strain showing the characteristics of P. pseudotuberculosis. The authors postulated that such a transmutation could also take place under natural conditions in the body of rodents, mainly in Rattus norvegicus, but occasionally also in wild rodents.

- 16) IAshchuk, A. P., Contribution to the problem of the species formation by P. pestis grown on artificial nutrient media. Pp. 141-147.

The conclusions of the author of this noteworthy article were that

"1. We recorded a spontaneous transmutation of P. pestis into a newly formed strain of pseudotuberculosis bacilli. This transmutation was due to changes in the environmental conditions of the plague strain in connection with its prolonged cultivation on artificial media.

2. The newly formed strain did not differ in any way from P. pseudotuberculosis.

3. The newly acquired properties of this strain remained stable in the course of 14 years.

4. Neither the prolonged cultivation of the strain on artificial media nor its repeated passage through animals caused a reversion to the parent type."

- 17) Dzhaparidze, M. N., Influence of the conditions of growth on the catalase activity of plague and pseudotuberculosis bacilli. Pp. 148-151.

The conclusion reached by the author was that

"the catalase activity of the plague and pseudotuberculosis bacilli indicates not the degree of their virulence but the intensity of the processes of aerobic respiration of the organisms."

- 18) Kazantseva, A. L. and Iurgina, Z. A., The importance of urea-containing media for the differential diagnosis of plague and pseudotuberculosis bacilli. Pp. 152-156.

The authors pointed out that though in general cultivation on urea-containing media was useful for the differentiation of plague and pseudotuberculosis bacilli, the possibility of occasional failures of this method had to be kept in mind. Therefore, results obtained with its aid ought to be evaluated together with those obtained with other differential-diagnostic tests.

- 19) Kniazeva, V. A., Stimulation of the growth of P. pestis with filtrates of its broth cultures. Pp. 157-161.
- 20) Kniazeva, V. A., Influence of some factors on the latent phase of growth of P. pestis. Pp. 168-171.

In the conclusions to the second more exhaustive of these two articles the author stated that

- (a) Addition of filtrates of 2-5 days old broth cultures of the EV strain to broth media in a concentration of 5% markedly shortens the latent phase of growth of small inocula (100 organisms) of P. pestis.
 - (b) If undiluted filtrates of 1-2 days old broth cultures of P. pestis are used for cultivation, growth becomes manifest after 18-20 hours and this period is shortened to 10 hours if filtrates of 5 days old broth cultures are used.
 - (c) Other stimulators of the growth of P. pestis (hemolysed sheep blood, sodium sulfite, filtrates of sarcinae or a special stimulator prepared in the Rostov Anti-Plague Institute) shorten the latent growth phase of the organism in an about analogous manner. Results obtained with the aid of incubation at either 28° or 37°C are identical.
- 21) Trifonova, A. A., Comparative study of some growth stimulants of P. pestis. Pp. 162-167.

Besides with the commonly employed stimulators Trifonova was able to promote the growth of P. pestis through cultivation on agar media prepared from hydrolysates of the blood clots of horses used for the production of anti-plague sera.

Selected Abstracts-III/70

- 22) Bakhrakh, E. E., Influence of some dyes promoting redox processes on the growth of P. pestis. Pp. 172-180.

As described in this article, the details of which do not lend themselves to the purpose of a brief review, optimal results in the promotion of the growth of plague bacilli from small inocula were obtained through the addition of thionin in a concentration of 1.10^{-3} moles to the broth media.

- 23) Uriupina, N. V., Change of some properties of the plague bacillus under the influence of the conditions of cultivation. (Referate.) Pp. 181-186.

This review can be quoted only by title.

- 24) Malinina, Z. E., Production of streptomycin-fast subcultures of P. pestis in vitro. Pp. 187-190.

The author postulated that the appearance of streptomycin-fast variants of P. pestis stood in connection with an activation of the dehydrase system.

- 25) Malinina, Z. Z., Agglutination of the plague bacillus by streptomycin. Pp. 192-196.

The conclusions reached in this article were that

"1. The plague bacillus becomes agglutinated by solutions of streptomycin and tryptaflavin in distilled water.

2. There exists a full correlation between the agglutinability of the plague bacilli with streptomycin and that with tryptaflavin. In both cases highly virulent strains become agglutinated more clearly and in a more stable manner than avirulent strains and streptomycin-fast variants.

3. Practical use may be made of this reaction for a preliminary determination of the virulence of cultures under test."

73. Kasatkin, N. F., Study of the cells composition of plague strains according to their motility. Author's Abstract. Zh. mikrobiol. (1964) 8:140-141.
(From the Rostov-on-Don Anti-Plague Institute.)

The author used for his studies a semi-solid medium containing 0.45% agar (pH 7.1) to each 100 ml of which immediately before use 1 ml of a 1% solution of 2,3,5-triphenyltetrazole chloride was added. Plates prepared with this medium were implanted with 0.05-0.1 ml quantities (25-50 organisms) of suspensions made from 18-20 hours old cultures of the strains under test grown at 28°C.

As Kasatkin described,

"After 2 days one noted on this medium inoculated with immotile plague bacilli a growth of isolated colonies in the shape of small red points; on the 3rd day the colonies became larger, their center became bright red, their periphery reddish. A final reading was made after 5 days. At that time the plague colonies had a diameter of 0.2-0.5 cm, their color was bright red; diffusion zones were absent and the medium retained its yellowish color.

On the plates implanted with pseudotuberculosis bacilli there grew on the second day on a yellowish background brightly red colonies with a diameter of 1-1.5 cm with a wide reddish diffusion zone with a radius of 0.5-1 cm; on the third day the colonies had a diameter of 1.5-2 cm and sometimes melted together. The diffusion zones of colonies which remained isolated became enlarged and melted together so that in such places the medium showed a red color...."

Examining 30,896 plague colonies and 3,766 colonies of pseudotuberculosis bacilli, the author found these differences in the appearance of growth invariably present. The absence of motility in the case of P. pestis and its presence in the case of pseudotuberculosis bacilli could be demonstrated also in stab cultures made in 0.3% agar to which 2,3,5-triphenyltetrazole chloride had been added.

74. Tarasevich, N. N., Observations on the influence of pasteurellosis infection and its experimental treatment on the higher nervous activity of the rabbit. Author's Abstract. Zh. mikrobiol. (1964) 8: 136. (From the Institute of Normal and Pathological Physiology, AMS, USSR, and the Central Institute of Epidemiology, MH, USSR.)

Selected Abstracts-III/72

Summarizing the results of his observations the author asserted

"that in rabbits with feeble nervous processes one could observe frustrane forms of pasteurellosis whereas in animals in which the processes of alertness were preponderant in the cervical cortex, pasteurellosis took a malignant course (two animals of this group succumbed to the infection)."

75. Aleksandrov, N. I. et al., A further study on the experimental efficacy of the chemical anthrax vaccine. Zh. mikrobiol. (1964) 8: 45-50.

As described in this article, the details of which cannot be briefly recapitulated, the chemical anti-anthrax vaccine prepared by the authors proved effective in rabbits. In monkeys its efficacy was somewhat superior to that of the STI vaccine.

76. Dukalov, I. A. and Akulova, M. F., Bacteriological diagnosis of experimentally produced anthrax during the first days of treatment. Authors' Abstract. Zh. mikrobiol. (1964) 8:139-140.
(From the Rostov-on-Don Anti-Plague Institute.)

The authors established that in rabbits which had been subcutaneously injected with anthrax and were afterwards treated with immune serum, streptomycin or penicillin, B. anthracis persisted as a rule at the site of infection for 72 hours.

While in the course of this work streptomycin was found to be effective for the treatment of anthrax, penicillin merely prolonged the life of the test animals but did not avert their death.

77. Anishchenko, G. A., Observations on the epidemiology of brucellosis in the Donets Oblast. Zh. mikrobiol. (1964) 8:107-111.
(From the Sanitary-Epidemiological Station of the Donets Oblast.)

The conclusions reached by the author were that

- "1. The source of brucellosis infection in the Donets Oblast were sheep and cattle.
2. Human infections with brucellosis were in 67% due to contact with diseased animals; in 21.6% the infection occurred by the alimentary route while in 11.4% the source of infection remained unknown.
3. Human attacks were recorded throughout the year.
4. During the period from 1952-1961 the urban brucellosis morbidity amounted to 24.9% as against an incidence of 75.1% in the villages.
5. Brucellosis affected mainly males (62.5%), mostly the age groups capable of work.
6. Anti-brucellosis vaccination in combination with sanitary-veterinary measures tended to lower the brucellosis incidence in man.
7. In order to eradicate the infection in the oblast, measures were taken to localize it through the slaughter of sheep as soon as the presence of the disease was detected among them; steps were also taken gradually to sanitize the cattle farms and to prevent the appearance of the disease in man through protection of the people against primary infection and prevention of re-infections in persons showing positive reactions."

78. Vorob'ev, A. A. and Pautov, V. N., Experimental study of enteral immunization against Q-fever with a live vaccine. Zh. mikrobiol. (1964) 8: 41-45.

As described in this article, enteral immunization of guinea-pigs with a live vaccine prepared from the M strain of Rickettsia burneti gave encouraging results. It seemed indicated therefore to study the possibility of using this vaccine for the immunization of man.

79. Mitov, A. et al., Q-fever in Bulgaria. Zh. mikrobiol. (1964) 8:101-106. (From the High Medical Institute in

Selected Abstracts-III/74

Plodiva, the Institute for Specialization and Higher Training of Physicians in Sofia and the High Military-Medical Institute.)

The conclusions reached by the authors were that

"1. Q-fever in Bulgaria has the character of a widespread endemic disease.

2. The main reservoir of Q-fever are the domestic animals, in the first line cattle and sheep. Moreover there exist in the country natural foci of the infection.

3. Human brucellosis occurs in two forms - pulmonary and, more rarely, purely febrile.

4. The local strains of R. burnetii, isolated from man, domestic and wild animals and ticks show properties not differing from those of the European strains."

- 26) Timofeeva, T. V., Contribution to the problem of the study of the plague cultures obtained through passage on biomyacin-containing media. Pp. 197-202.

The conclusions of the author were that

1. Passage of plague bacilli through broth media containing increasing amounts of biomyacin did not lead to the appearance of forms resistant to this antibiotic.

2. As a result of 18 such passages the plague strains showed some changes in their biochemic properties, e. g., a decrease of their dehydrase activity.

3. In the presence of an insufficient oxygen supply the glycerol-negative strain under test lysed after passage through glycerol-containing media rabbit erythrocytes later than the parent strain. The absence of such a difference in the case of the glycerol-acidifying strain used by the author supported the view that there existed differences in the metabolism of the glycerol-acidifying and the glycerol-negative races of P. pestis.

- 27) Timofeeva, T. V., Action of biomyacin on the plague bacillus in vitro. Pp. 203-209.

The author found that

1. Biomycin exerts in vitro only a bacteriostatic but not a bactericidal action on P. pestis. Among the 6 strains tested (including the EV strain), an avirulent glycerol-positive strain proved most sensitive to the antibiotic, a virulent strain (No. 708) least sensitive.

2. The present tests supported the view held by previous observers that the action of biomycin on the plague bacillus in vitro depended to a high degree on the conditions of cultivation, particularly the pH of the medium, the size of the inoculum and the length of contact of the organisms with the antibiotic.

3. Biomycin prolongs the period of transition from the lag phase into that of logarithmic growth. It acts more energetically on 12-18 hours old cultures than on such grown for 24-48 hours.

4. Biomycin inhibits the dissemination of glycozell by the plague bacillus.

5. In the presence of biomycin the EV strain and the virulent strain 708 showed differences in the intensity of their growth on glycerol-containing media, the EV strain growing under these conditions only in the presence of lower concentrations of the antibiotic.

Biomycin delayed the fermentation of maltose and glycerol by P. pestis.

- 28) Akimovich, V. V. and Dobrotsvetova, T. IA., The quantitative antigen composition of plague and pseudotuberculosis bacilli according to the results of agar precipitation tests. Pp. 210-219.

The conclusions reached by the authors of this article, the text of which deserves the attention of workers interested in the problems of plague immunology, were that

"1. The virulent and toxic P. pestis strains have at least 5 serologically different antigenic elements. The same amount of partial antigens was found also in some of the vaccinal strains. In the overwhelming majority of the plague strains which have been kept

Selected Abstracts-III/76

for a long time in the laboratory one can observe 2, 3 or 4 antigens.

2. The virulence of P. pestis apparently does not depend upon the quantitative composition of their antigenic apparatus.

3. One must postulate that the plague bacilli possess only one species-specific antigen, the others being shared with the pseudotuberculosis bacilli.

4. It is most probable that out of the group antigens only one, apparently the R somatic antigen, is present in the plague and pseudotuberculosis bacilli in approximately equal quantities.

5. The method of agar precipitation can be used for the selection of plague strains characterized by the largest amounts of partial antigens."

- 29) Smirnova, E. I. and Chibrikova, E. V., A contribution to the problem of the antigenic structure of the pseudotuberculosis bacillus. Pp. 220-227.

Commenting upon their well documented observations, the details of which must be studied in the text, the two authors stated

"that the transition of the plague into the pseudotuberculosis bacillus is accompanied by such profound changes in the antigenic structure that the newly formed organisms--in contrast to the plague cultures--show a serological relationship to the bacteria of the paratyphoid group. Taking account of this relationship and also of the similarity of some pathogenetic peculiarities shown by the pseudotuberculosis bacillus and some of the salmonellae, one may postulate that the road of the further variability of P. pseudotuberculosis is directed towards the salmonella group."

- 30) Tumanskii, V. M. et al., Characterization of the glycerol-negative plague strains isolated in the western Kara-Kums in 1949-1950 which had lost their virulence. Pp. 228-233.

Observations on 7 Turkmenian plague strains which since their isolation in 1949-1950 had been kept on artificial media showed that

- "1. The seven museum strains of P. pestis studied showed culturally and biochemically the typical features of glycerol-negative strains.
2. All 7 strains proved to be avirulent and innocuous for guinea-pigs. None of them, when administered subcutaneously in doses of 15-20 billion doses was capable of causing death of the animals.
3. Histological examinations of the organs of guinea-pigs to which these doses had been administered, showed the presence of the changes usually observable after the administration of identical doses of other vaccinal (plague) strains."

- 31) Chertnik, M. L., Action of sulfonamides on the capsule formation of P. pestis. ~~Pages~~ 234.

Working with the EV strain the author found that sulfidin in minimal concentrations stimulated the growth and capsule formation of P. pestis, whereas higher concentrations (1-4%) exerted a bacteriostatic action and retarded capsule formation. Similar results were obtained with sulfazol while galosol even in minimal concentrations retarded capsule formation.

As shown by experiments on white mice, plague cultures grown on sulfidin-containing media and therefore possessing large capsules, were endowed with a higher immunogenicity than cultures grown on ordinary agar and showing small capsules.

- 32) Druzhinina, I. P., Contributions to the problem of the specificity of the polyvalent plague bacteriophage. Pp. 235-239.

The conclusions of the author were that

- "1. The polyvalent plague bacteriophage is not strictly specific since it lyses about 26% of the pseudotuberculosis strains.

Selected Abstracts-III/78

2. The polyvalent phage lyses more frequently the R form of the pseudotuberculosis bacilli but in some instances also the S and transitional forms.

3. One series of the polyvalent plague phage lysed a few species of bacteria of the enteric group (typhoid bacilli and dysentery bacilli Schmitz-Stutzer)."

- 33) IAschuk, A. P. et al., Observations on the isolation of P. pseudotuberculosis from rats and mice trapped in the town of Gor'ki. Pp. 240-248.

Summarizing their findings, the authors stated that

1. All the freshly isolated pseudotuberculosis strains were in the S or transitional form, never in the R form.

2. 15 out of the 37 strains which were at first not agglutinated by plague immune serum, became agglutinable with this serum after cultivation on artificial media.

3. 19 of the pseudotuberculosis strains which, while in the S form, were not lysed by pseudotuberculosis phages, became lysable after cultivation on artificial media. Six of the strains were also lysed by plague phages.

4. The pseudotuberculosis strains were highly pathogenic for rabbits but almost not pathogenic for white rats.

5. The S form of the pseudotuberculosis bacillus was more virulent than the R form, killing guinea-pigs after 5-9 days, white mice after 3-6 days. The strains in the R form were either avirulent for these species or killed only a small percentage of the animals with some delay.

6. In order to arrive at a laboratory diagnosis of pseudotuberculosis one must pay attention not only to the phage sensitivity and agglutinability of the strains but also to the other differential-diagnostic signs.

- 34) Murav'eva (Fedutina), N. K., On the variability of the pseudotuberculosis bacillus. Page 249.

As described in this note, a pseudotuberculosis strain kept in the laboratory at room temperature underwent dissociation, forming partly glycerol-negative colonies. Subcultures from the latter also failed to acidify glycerol, showed an atypical morphology and were lysed by pseudotuberculosis phages at lower titers.

- 35) Zakharova, G. A., Some data on the treatment of experimental pneumonic and bubonic plague in guinea-pigs with colimycin. Pp. 272-278.

Results obtained in the treatment of experimentally induced bubonic and pneumonic plague were promising.

- 36) Flegontova, A. A. et al., Efficacy of the treatment and prophylaxis of experimental plague in relation to the mode of infection of the guinea-pigs - with a syringe or through the bite of "blocked" fleas. Pp. 279-282.

The authors found that almost all guinea-pigs which 6 weeks after immunization with the plague vaccine 1-17 had been challenged with 200 DCL of the virulent plague strain 708 survived, regardless whether they had been infected by subcutaneous injection or through the bite of blocked cheopis fleas.

As shown by a further series of tests, guinea-pigs infected through such fleas responded well to treatment with streptomycin or colimycin.

- 37) Lenskaia, G. N. et al., Treatment and emergency prophylaxis of experimental pneumonic plague with anti-plague serum and its gamma-globulin. Pp. 283-290.

The authors obtained rather disappointing results when using native anti-plague sera or their gamma-globulins for the purposes of prophylaxis or treatment in guinea-pigs intratracheally infected with P. pestis. It was found, however, that in the case of timely commenced plague treatment it was useful to combine treatment with antibiotics with the administration of the gamma-globulin.

- 38) Kuznetsova, V. I. et al., Study of the gamma-globulin of anti-plague sera. Report I. Pp. 283-290.

The findings of the authors indicated that while
"in the anti-plague serum the protective anti-
bodies are mainly bound up in the gamma-globulin,

a considerable part of them is contained in the alpha and beta fractions which, in the case of the method of purification used, are not utilized. It follows that the method of purification of the anti-plague serum studied leads to a big loss of antibodies. It is not possible, however, to avoid this loss because the alpha and beta globulins, containing a part of the antibodies, cannot be used for prophylactic and therapeutic purposes on account of their anaphylactogenic properties."

- 39) Derteva, I. I. et al., Combined treatment of experimental bubonic plague with streptomycin and the gamma-globulin of anti-plague serum. Pp. 297-305.

The conclusions reached by the authors of this article were that

- "1. The directions of the action of streptomycin and the gamma-globulin fraction of anti-plague serum in the body of plague-infected animals are different: the first acts on account of its bacteriostatic and bactericidal properties mainly on the plague bacillus and on the chain reactions caused by it and its products, the second on the microorganisms, changing its reactivity to the causative organisms.
2. If treatment was started on the 2nd or 3rd day after subcutaneous infection of guinea-pigs with P. pestis, the survival rate in the group of animals given sub-therapeutic doses of streptomycin in combination with plague serum or its gamma-globulin fraction was 30 or more percent higher than that of the animals treated with the same streptomycin doses.
3. If the treatment of the animals was started late (on the 5th or 6th day) after infection, i. e., in the period of complete generalization of the process and in the agonal period, the survival rate of the animals treated only with streptomycin and with this antibiotic in combination with the gamma-globulin fraction of anti-plague serum was identical (80%) or somewhat lower in the combinedly treated group."

- 40) Akimovich, V. V. et al., Plague infection in newly-born white mice. Pp. 306-313.

The authors found white mice in the early stage of post-embryonal life maximally susceptible to plague infection. The resistance to P. pestis markedly increased 14-16 days after birth but was even then below that of adult animals.

The size and staining reaction of P. pestis in the newly-born white mice showed signs of a marked polymorphism.

Female mice devouring their plague-infected offspring succumbed in most instances to the disease.

- 41) Akimovich, V. V. and Dobrotsvetova, T. IA., Role of the primary focus of infection, appearing at the site of inoculation of the causative organisms, in the development of generalized plague infection. Pp. 314-319.

In order to demonstrate the importance of the process developing in white mice at the site of the inoculation for the appearance of a generalized plague infection, the authors injected doses of 1,000 organisms (10 DCL) of the strain 708 intracutaneously into the distal part of one of the paws of white mice and afterwards amputated the limb in question at intervals ranging from 10 minutes to 48 hours. They concluded from their observations that

- (a) During the first 24 hours after infection the plague bacilli remain as a rule restricted to their portal of entry without markedly increasing in numbers.
- (b) 48-72 hours after the infection the organisms begin to multiply intensively at the site of inoculation and pari passu with this it comes to their massive penetration into the regional lymph nodes. Therefore amputation of the limbs during this period, especially 72 hours after the infection, does not prevent a fatal infection with P. pestis in most of the animals.

On account of these observations the authors postulated that the formation of a primary focus at the portal of entry of plague infection was a sine qua non for the development of a generalized process.

- 42) Akimovich, V. V. and Dobrotsvetova, T. IA., Influence of cortisone, desoxycorticosterone and of the adenocorticotrophic hormone on the development of experimental plague in white mice. Pp. 320-326.

Selected Abstracts-III/82

The conclusions of the authors were that

"1. Cortisone, desoxycorticosterone and the adrenocorticotrophic hormone, once administered in large doses, somewhat increase the susceptibility of white mice to plague infection. The inhibition of the natural resistance to plague is most considerable in the case of the adrenocorticotrophic hormone, followed by cortisone and last by desoxycorticosterone. The simultaneous administration of both steroid hormones gives the same effect as that produced by the adrenocorticotrophic hormone.

2. Under the influence of these hormones the mean lifespan of plague-infected animals becomes shortened, but the animals begin to die at about the same time as those of the control group.

3. One may state that the hormones of the adrenal cortex and the anterior lobe of the hypophysis increase the sensitivity to P. pestis in those mice which possess a most marked natural resistance to this infection.

4. The use of cortisone in order to increase the sensitivity of the test mice to (simultaneous) infection with the causative organisms of plague, tularemia and anthrax was but slightly effective and therefore not promising for practical purposes."

- 43) Lenskaia, G. N. et al., Bacteriological diagnosis of mixed infections. (Plague, anthrax, tularemia and brucellosis.) Pp. 339-345.

In order to obtain pure cultures of the various organisms from mixtures containing plague, anthrax and tularemia bacilli and brucellae the authors used the following media:

1. For the isolation of B. anthracis - Hottinger's agar (pH 7.2) with addition of 5 ml of plague bacteriophage (10^{-9}) per 100 ml;

2. For the isolation of P. pestis - agar prepared with a tryptic digest of blood clots (pH 7.2) containing 10 units of penicillin per 100 ml or the same agar containing 0.025% sodium sulfite and gentian violet in a final concentration of 1:100,000 (or methyl violet 1:200,000);
 3. For the isolation of brucellae - agar prepared with a tryptic digest of blood clots with addition of 10 units of penicillin and 5 ml of plague bacteriophage (10^{-9}) per 100 ml;
 4. For the isolation of tularemia bacilli - slants of McCoy's medium the surface of which had been treated with 0.1 ml of a penicillin solution (100 units) and 0.1 ml of the plague bacteriophage or the same medium without penicillin, into which methyl violet in a final concentration of 1:100,000 had been embodied.
- 44) Korobkova, E. I., Accelerated bacteriological diagnosis of plague.* Pp. 346-353.

The two methods recommended by the author for an accelerated laboratory diagnosis of plague were (a) cultivation on semisolid agar and on blood agar containing gentian violet and (b) observations on the titer increase of plague bacteriophage added to the suspensions under test.

- 45) Tumanskii, V. M. and Kniazeva, A. A., Methods for the rapid observation of plague bacilli in mixed cultures. Report I. Study of the growth of P. pestis on sensitive media implanted with fluids containing various amounts of the organisms. Pp. 354-357.

In order to ascertain the presence of P. pestis in the air or on inanimate objects, the authors recommended (a) passage of the air to be examined through water, normal saline solution or broth, respectively washing of the inanimate objects under test in one of these fluids and cultivation of 0.1 ml amounts of the latter on agar plates containing 0.1% blood and gentian violet in a final concentration of 1:100,000. (Incubation at 28°C.)

* The technical details of the methods recommended in this and the following papers must be studied in their original text or in translations.

Selected Abstracts-III/84

- 46) Tumanskii, V. M. et al., Methods for the rapid observation of plague bacilli in mixed cultures. Report II. Accelerated diagnosis of plague with the aid of the agglutination reaction, bacteriophage tests and other methods. Pp. 358-362.

The authors recommended confirmation of the plague nature of the growths obtained with the aid of the above described technique through slide agglutination tests and tests with a specific bacteriophage.

- 47) Tumanskii, V. M. et al., Methods for the rapid observation of plague bacilli in mixed cultures. Report III. Accelerated isolation of P. pestis from the carcasses of guinea-pigs with the aid of bacteriophage. Pp. 363-368.

As discussed in this article, it was possible to confirm the presence of plague in guinea-pigs which had succumbed to the infection within a few hours through observations on the early stages of growth of the causative organisms on blood agar plates containing gentian violet and bacteriophage tests.

- 48) Kuraev, I. I., Contribution to the problem of the early detection of P. pestis with the aid of infection of laboratory animals. Pp. 369-376.

Testing the various substances recommended for an acceleration of the death of plague-infected laboratory animals, the author found trypan-blue and egg-yolk most effective.

- 49) Mitin, S. V. and Shusherova, N. I., Observation of the specific antigen in the blood of the test animals as a method of the early diagnosis of plague infection. Pp. 377-380.

The authors found that through complement fixation tests in the cold (for 18 hours or longer) it was possible to detect the specific plague antigen in the blood of infected laboratory animals in the early stages of the disease.

- 50) Borzenkov, A. K., Plague outbreaks in the Mongolian People's Republic up to 1942. Pp. 381-390.

This article can be quoted by title only.

- 51) Malinina, Z. E., Reactivity of the population of the Mongolian People's Republic to intracutaneous inoculation with the EV vaccine. Pp. 391-397.

In the conclusions to this article it is stated that

"1. The administration of the EV anti-plague vaccine containing a high percentage (41%) of live organisms caused comparatively slight reactions and proved fully suitable for practical purposes.

2. The reactions shown by the populations of the endemic raions of the Republic, immunized with increased or double doses of the vaccine differed little from those in groups of people intracutaneously vaccinated with one human dose of the same series. According to our data, severe general and local reactions were absent in both groups.

3. A well organized and controlled campaign with a plague vaccine containing a high percentage of viable organisms leads to the creation of an appreciable immune stratum among the population. The creation of this immunity together with the implementation of other prophylactic measures is apt to decrease the endemicity of the focus.

4. Intracutaneous allergic tests performed in various groups of people (vaccinated; not vaccinated; persons who had recovered from primary pneumonic plague under streptomycin treatment) were found to be suitable for the demonstration of an immunological transformation of the body."

- 52) Malinina, Z. E., Contribution to the problem of the preservation and viability of P. pestis in human dead bodies and in animals succumbed to plague under the conditions of the highly mountainous raions of Mongolia. Pp. 399-401.

Commenting upon her findings, the author stated

"that under the conditions of the highly mountainous raion of Mongolia it was possible to isolate viable and virulent plague bacilli from greatly putrefied carcasses of tarabagans at a considerable time after their death. Thus

in our experience this interval equalled 37, 30 and 26 days. It is interesting that cultures could be obtained not only with the aid of animal experiments but also through direct cultivation....

In the same raion it was also comparatively easy to obtain cultures from human plague victims through direct cultivation as well as through animal experiments. From 4 dead bodies, exhumed 4-9 days after death, cultures of P. pestis were obtained not only with the aid of animal experiments but also through cultivation on meat-peptone agar."

The author entertained no doubt that the low temperature prevailing in the raion in question played a decisive role in the preservation of P. pestis in the dead bodies and carcasses.

- 53) Gorokhov, V. I. and Borzenkov, A. K., Contribution to the problem of the insusceptibility of a considerable part of the populations of Meriones meridianus to experimental plague infection. Pp. 402-406.

The authors found that only 98 of 244 midday gerbils experimentally plague-infected by various routes became affected by the disease. Since all tests to prove the existence of a previous affection in the animals gave negative results, the resistance of the majority of the gerbils to plague was not due to an acquired (post-infectious) immunity. The author postulated that the resistance of the gerbils to plague was related to their physical condition: gerbils kept in the laboratory on an abundant diet proved less liable to experimental plague infection than those kept on a meager diet or freshly captured animals.

The author stressed that 60 out of the 98 animals which contracted plague showed the presence of a bacteremia, being thus apt to infect their ectoparasites.

- 54) Murav'eva (Fedutina), N. K., Observations on the course of plague in the large gerbils (Rhombomys opimus Licht.). Pp. 407-411.

In the conclusion of this report the author summarized that

- "1. Rh. opimus is the prevalent species among the plague-affected rodents in the Bakanas Raion of the Alma-Ata Oblast, forming 95.14% of the rodent population.
2. From 4,110 big gerbils under examination 69 plague strains were isolated, while from 211 rodents belonging to other species 6 strains were obtained, including one isolated for the first time from Spermophilopsis leptodactylus Licht.
3. Notwithstanding the considerable infection rate of the big gerbils no mass mortality was noted among them.
4. Most plague cultures from the big gerbils were obtained through direct cultivation on agar plates.
5. Morbid changes in the big gerbils succumbed to plague were found most frequently in the spleen and liver.
6. Microscopic examinations of impression films from the organs of gerbils succumbed to plague revealed the presence of the causative organisms only in 4 instances; the organisms were never found in blood smears.
7. Plague cultures were isolated from gerbils showing morbid changes in their organs as well as from those free from gross appearances. In the case of 7 animals showing gross changes plague cultures could be isolated only with the aid of animal experiments.
8. Positive cultures were mostly obtained from the spleen of the animals; in 3 instances cultures from the blood proved positive.
9. When examining the big gerbils it is indispensable to pay attention to the appearance of atypical colonies, to use media containing growth stimulators for P. pestis and such containing anti-phage serum.

55) Murav'eva (Fedutina), N. K., Isolation of plague cultures from Spermophilopsis leptodactylus Licht. and Lepus tolai Pall. Page 413.

The observations recorded in this note were made in the course of a 1948 plague epizootic in the Bakanas Raion of the Alma-Ata Oblast involving mainly Rh. opimus. As noted already in the preceding review, Sp. leptodactylus was found naturally plague-infected for the first time.

- 56) Lebedev, N. E. et al., Some data on the amount of viable organisms in the EV anti-plague vaccine in relation to the concentration of sodium chloride in the culture media. Pp. 475-477.

The authors found that the use of media with a NaCl concentration of only 0.3% (instead of 0.5%) for the manufacture of dry vaccine from the EV strain exerted a favorable influence on the viability rate of P. pestis in the vaccine. The vaccine lots prepared according to this modified process proved to be highly immunogenic.

- 57) Mitin, S. V. et al., The importance of some technological factors for the production of the dry live plague vaccine. Pp. 478-486.

The conclusions arrived at through this study were that

1. Prolonged storage (up to 48 hours) before drying in a frozen state at a temperature of -76°C considerably lowers the amount of viable organisms present in the live anti-plague vaccine after drying.
2. Rapid freezing of the vaccine before drying at a low temperature (dry ice) preserves the viability of the organisms in the vaccine after drying.
3. A lowering of the general concentration of the vaccine (autolysis) and of the amount of live organisms (caused by the death of the latter) takes place mostly during the first hours after the moment of creation of a vacuum with a residual pressure equal to 0.1-0.2 mm of the mercury column.
4. An additional cooling of the vaccine in dry ice at a temperature of -76°C for 6 hours during the initial period of drying and a gradual raise of the negative environmental temperature to one above zero retards the evaporation of water from the vaccine and better preserves the viability of the organisms in the vaccine after drying.

5. For a better preservation of the viability of the organisms in the dry vaccine it is indispensable. . .to reduce the thickness of the layer subjected to freezing and to enlarge the size of the surface exposed to evaporation.

6. The optimal residual moisture of the dry live vaccine prepared from cultures of avirulent plague bacilli equals 3-5%.

- 58) Mitin, S. V. et al., The activity of the dry anti-plague vaccine 1-17 subjected to different methods of storage. Pp. 487-494.

The important conclusions reached by the authors of this article through a careful study of the keeping qualities of the vaccine 1-17 under various conditions of storage were that

1. The best method of storage for the dry anti-plague vaccine 1-17 consists of sealing it sub vacuo in ampules and keeping it at a temperature of 4-8°C. In some instances it is permissible to substitute nitrogen for the vacuum, what considerably simplifies the work with the vaccine ampules. A substitution of dry air for the vacuum lowers the immunogenic activity of the vaccine.

2. Autolysis of the microbial organisms in the vaccine is not marked and changes the content in organisms to an inconsiderable degree.

3. Death of the organisms in the dry anti-plague vaccine 1-17 sealed sub vacuo in ampules or kept in nitrogen or in dry air is most frequent when vaccine series are stored which after drying contained large amounts of viable organisms.

4. A residual humidity in the vaccine ranging from 3 to 5% exerts no influence upon the process of microbial deaths, does not lower the immunogenic properties of the vaccines and does not shorten the period of their potency.

5. A storage of the dry anti-plague vaccine 1-17 at 37°C inactivates it within 1-2 days; if such vaccines are cultivated on selective media after 35-40 days, no viable cells can be found.

6. If the vaccine 1-17 is kept at room temperature (18-20°C), less than 10% viable organisms are found in it

Selected Abstracts-III/90

within 3 months. If kept under these conditions for 10 months, cultures fail to show the presence of viable organisms in the vaccine.

7. The immunogenic properties of the dry anti-plague vaccine 1-17 are better preserved when it is kept in sealed ampules sub vacuo than when nitrogen or dry air are substituted for the vacuum.

8. In order to determine the period of potency of the vaccine it is indispensable to study its immunogenic properties and exactly to determine the minimal immunizing dose.

- 59) Krainova, A. N. et al., Contribution to the problem of the prolongation of the period of potency of the live dry anti-plague vaccine 1-17. Pp. 495-500.

The authors maintained that live dry anti-plague vaccines (EV as well as 1-17), regardless whether they contained a high or a low percentage of viable organisms, remained potent for a year or more if adequately stored.

- 60) Bakhrakh, E. E. et al., Improvement of the technology of the preparation of nutrient media for the cultivation of the plague bacillus. Report I. The regime of hydrolysis of Hottinger's basic fluids. Pp. 501-507.
- 61) Iurgina, Z. A., Use of casein media for the cultivation of P. pestis. Pp. 508-513.
- 62) Bakhrakh, E. E. et al., Media prepared from acid hydrolysates of casein for the cultivation of P. pestis. Pp. 514-518.

These three articles can be quoted by title only.

- 63) Akimovich, V. V. and Dudova, T. G., Differentiation of live and dead bacteria with the aid of the phase-contrast microscope. Pp. 524-529.

Examining plague bacilli of the EV strain grown on urea-containing agar with the aid of the phase-contrast microscope the author found it easy to distinguish between viable and dead organisms. The latter showed smaller dimensions than the former.

Selected Abstracts-III/91

- 64) Dobrotsvetova, T. IA., Intranasal infection as a means to produce pneumonic plague in white mice. Pp. 530-535.

The authors found that most of the white mice which 72 hours before intranasal infection with P. pestis had been exposed to formol fumes developed pneumonic plague followed by a generalization of the process.

- 65) Buntin, E. V., Observations on the methods of determining the fastness of plague bacilli to streptomycin. Pp. 536-540.

The author pointed out that while it was expedient to use filter paper disks impregnated with the antibiotic for a determination of the streptomycin fastness of plague cultures, this method gave only approximate results.

In order to determine exactly the resistance of a given plague strain to the antibiotic, it was necessary to use other methods (direct titration or animal experiments).

- 66) Golkovskii, G. M. and Kuznetsova, K. A., A method of preparing dry plague bacteriophage for diagnostic purposes. Pp. 541-542.

As can be gathered from this note, the authors soaked small filter paper disks in suspensions of plague bacteriophage and dried them sub vacuo at a low temperature over calcium sulfate. The disks remained usable for 55 days.

- 67) Petrunina, O. M., Preservation of the organs of animals succumbed to plague. Page 548.

The author recommended covering the organs of animals which had succumbed to plague, after they had been put in flasks, with fragments of sterilized peat. Organs from experimentally infected white mice treated in this manner did not become putrefied and yielded evidence of the presence of P. pestis after 10-25 days.

The method also proved useful for the examination of musk-rats suspected to suffer from tularemia.

Papers on fleas (quoted by title)

- 68) Tumanskii, V. M. and Romashova, E. A., Observations on the isolation of bacteriophage from fleas collected under natural conditions. Pp. 414-416.

Selected Abstracts-III/92

- 69) Novokreshchenova, N. S., Materials concerning the ecology of the fleas of the small suslik in relation to their epizootological importance. Pp. 444-456.
- 70) Dudnikova, A. F., Fauna and dynamics of frequency of the rodent fleas in the western Kara-Kums. Pp. 457-465.
- 71) Observations on the fauna of the mammalian fleas and ticks on the Ust'-Urt Plateau. Pp. 466-470.
- 72) Sinichkina, A. A. and Furer, B. S., Remarks on the flea fauna of the rodents of the Saratov Oblast. Pp. 471-474.
- 73) Tiflov, V. E., Observations on the breeding of fleas under laboratory conditions. Pp. 550-557.

This paper contains a survey of the literature, including a considerable number of publications by Western authors.

- 74) Artamonova, A. I. and Matoshin, V. M., A method for the prolonged preservation of fleas under field conditions. Pp. 546-547.

The authors recommended (a) to put 2-3 ml of normal saline into a test tube; (b) next to insert a 2 cm thick plug of hygroscopic cotton, leaving a 2 cm high space between the saline and the lower surface of the plug; (c) to put a filter paper disk on the cotton plug and then to insert a 0.5 cm high layer of sand which in its turn is covered with one or two layers of filter paper and (d) to use a cork for closing the test tube.

Implementation of this method during summer under field conditions proved satisfactory, the collected fleas surviving for periods of up to 10 days.

- 75) Olli, V. D., Observations on the influence of cystine on the growth of the tularemia bacillus. Pp. 259-261.
- 76) Denisenko, L. K., Morphological variability of the tularemia bacillus under the influence of glycocoll. Pp. 262-264.
- 77) Kuznetsova, L. I., Seasonal and age-conditioned changes in the susceptibility of the water-rats of the Volga Delta to tularemia. Pp. 417-431.

Selected Abstracts-III/93

These three articles can be quoted by title only.

- 78) Kalacheva, N. F. et al., Observations on the focal occurrence of tularemia in the valley of the lower part of the Chu River. Pp. 432-437.

Mainly involved in the 1941 epizootic observed by the authors were hares of the species Lepus tolai. The authors maintained, however, that the tick Rhipicephalus pumilio, which they found infected with tularemia for the first time, might act not only as a vector but also as a reservoir of the infection.

- 79) Tumanskii, V. M. and Kolesnikova, Z. I., Transmission of tularemia through the maternal milk. Pp. 438-440.

Summarizing their findings the authors stated that

"the experiences gathered when infecting lactating rabbits and guinea-pigs showed that the milk of these animals may contain the causative organisms of tularemia and that its introduction even in small doses by the subcutaneous route to white mice may lead to their infection and death. Young animals suckling the milk of tularemia-affected guinea-pigs may become infected and succumb to the disease."

The authors considered it as possible that human beings might contract the disease through the consumption of tularemia-susceptible domestic animals (camels, goats, sheep). However, this postulation needed confirmation through the examination of the milk of tularemia-affected animals.

- 80) Antsiferov, M. I. et al., Dry nutrient media for the cultivation of the tularemia bacillus. Pp. 519-523.

The authors found that

"Dry media prepared from fermented meat hydrolysates according to Hottinger's method and the media of Mikhalova and Ukhalov (Izvest. Irkutsk. protivochumn. inst. 9, 1951), after the addition of 1% egg-yolk or of 5% of an egg-yolk emulsion in normal saline, may be used for the cultivation of the tularemia bacillus in the laboratory and for its isolation from the body of infected animals."

Selected Abstracts-III/94

- 81) Akimovich, V. V. and Samoilova, L. V., Identification of the anthrax bacillus according to its initial growth on a synthetic medium. Pp. 265-271.

As stated in the conclusions to this article

"The morphological peculiarities of the growth of the anthrax bacilli on a synthetic medium containing sodium-ammonium-phosphate as the sole nitrogen source, can be used for a differentiation of these organisms from similar species of spore-bearing bacilli."

The authors admitted, however, that further studies were necessary to confirm the practical usefulness of their medium.

- 82) Igonina, N. B., Treatment of experimental brucellosis with chemotherapeutics and antibiotics. Report I. Action of some sulfonamides and antibiotics on the brucellae in vitro. Pp. 332-338.

The author found that (a) streptomycin, mycerin and colimycin, even in small doses, exert in vitro a clearly marked bactericidal effect on developing brucellae, streptomycin proving most effective in this respect; (b) colimycin proved most active against fully developed brucellae; (c) terramycin exerted a bactericidal action on these organisms only in high doses and after a prolonged contact; and (d) sulfonamides exerted neither a bactericidal nor a bacteriostatic action on the brucellae.

Papers on cholera (quoted by title)

- 83) Olli, V. D. and Petrova, L. S., A comparative study of the immunogenic properties of heat-killed, formolized and alcohol-treated cholera vaccines. Pp. 89-83.
- 84) Ostroumova, N. M., Contribution to the problem of producing chemical cholera vaccines. Report II. Antigenic and serological properties of chemical cholera vaccines obtained through extraction with distilled water and pyridin solution. Pp. 94-99.
- 85) Igonina, N. B., Action of the antibiotics colimycin, streptomycin, synthomycin and ecmolin per se and in various combinations on the cholera vibrio in vitro. Pp. 250-254.

- 86) Petrunina, O. M., Activity of the cholera bacteriophage produced through submerged cultivation. Pp. 255-258.
- 87) Fadeeva, T. D. et al., Action of formazol, sulfonamides and methylen-blue on the cholera vibrio. (Referate.) Page 327.
- 88) Petrunina, O. M., Prophylactic and therapeutic properties of the cholera bacteriophage. Pp. 328-331.
80. Vashkov, V. I., Disinfection and its role in the system of measures for the eradication or reduction of the incidence of infectious diseases.
Zh. mikrobiol. (1964) 8: 3-7.

As stated in the introduction to this article, special disinfection stations exist in 56 large towns of the Soviet Union while almost all sanitary-epidemiological stations have a disinfection department, a part of the stations also a special department for prophylactic disinfection. The number of persons engaged in disinfection work in the Soviet Union amounts to 50,000.

The activities of the disinfection stations or departments consist mainly of

"complete and timely hospitalization of patients with infectious diseases combined with the organization and performance of disinfection in the foci of infection and also of prophylactic disinfection, including disinfection, disinsectization and deratization."

The author turns then to a discussion of the organization and to a closer scrutiny of the activities of the disinfecting stations and departments, referring in particular to the measures to be taken in the case of some of the infectious diseases with which they have to deal. Inter alia he draws attention to the methods with the aid of which it is possible simultaneously to eradicate rodents and their ectoparasites. Advantage may be taken for this purpose of substances like pivalylindandione or heptachlor which combine raticidal and insecticidal properties or of mixtures of insecticides like DDT or aldrin with zinc phosphide or other rat poisons. After the consumption of baits made from such mixtures the blood of the rodents becomes toxic for arthropods. Advantage has been taken already of this

Selected Abstracts-III/96

combined method to combat plague, tick-borne encephalitis and cutaneous leishmaniosis, but, as the author maintains, its implementation would also be useful for the prophylaxis of hemorrhagic fever, tick-borne rickettsioses and tularemia.

New and effective raticides which have become available within recent years include anti-coagulants and various fluor-containing compounds.

The author claims in this connection that in a number of towns the disinfection services have been able to free 70% of the areale from rodents.

Vashkov deplores that progress in the provision of new equipment and of supplies for the disinfection services is rather slow. Nevertheless he maintains that by combining the use of the modern preparations for disinfection, disinsectization and deratization with the implementation of hygienic measures it would be possible to lower the incidence of some of the infectious diseases and to eradicate others.

81. Osipian, V. T. and Uspenskii, N. D., A method for determining the bactericidal power of gaseous disinfectants. Zh. mikrobiol. (1964) 8: 8-12.
(From the Order of Lenin S. M. Kirov Military-Medical Academy.)

Using the method devised by them which cannot be briefly described, the authors, working with E. coli and staphylococci, found that the bactericidal properties of methyl bromide were considerably inferior to those of ethylene oxide.

82. Prishchep, A. G., Disinfection of articles made from fur with methyl bromide. Zh. mikrobiol. (1964) 8: 13-16.
(From the Central SR Disinfection Institute.)

In addition to experiments with E. coli the author found that in experiments with anthracoid bacilli the methyl bromide was endowed with sporocidal activities. Optimal conditions for the action of the compound in a disinfecting chamber were a relative humidity of 100%, a temperature of 40°C, a dosage of 3,000-3,500 g per cubic meter and an exposition period of 24 hours.

83. Karaseva, A. N. and Uzvalok, M. A., A paraformalin disinfection chamber with an interior volume of 3 cubic meters. Zh. mikrobiol. (1964) 8: 16-18.
(From the Central Disinfection Institute and the Central Designing and Construction Bureau, MH, USSR.)

This illustrated note can be quoted by title only.

84. Subbotin, A. A. et al., A method of chamber disinfection of articles made from artificial fur.
Zh. mikrobiol. (1964) 8: 18-22.
(From the Central SR Disinfection Institute.)

The contents of this article do not lend themselves to the purposes of a brief review.

85. Pashkov, E. P. and Rusakova, E. V., Determination of antimicrobial action during the early stages of bacterial development. Zh. mikrobiol. (1964) 8: 22-26.
(From the First Order of Lenin S. M. Sechenov Moscow Medical Institute.)

The conclusions reached in this article, the details of which must be studied in the original or in a translation were that

- "1. The method of growing bacteria on cellophane plates permitted to obtain rapidly an answer in the evaluation of the bactericidal efficacy of phenol and its threshold doses.
2. With the aid of this method it was possible to observe the rapidly appearing disruption of the normal microbial growth under the influence of penicillin and streptomycin.
3. The method also made it possible to study the development of the microbes under the influence of irradiation.
4. After drying and staining the preparations on cellophane plates can be used for a prolonged storage and subsequent study.

5. The method of growing bacteria on cellophane plates is simple and expedient. It is possible, therefore, to use it in any bacteriological laboratory."

86. Podlevskii, A. F., Influence of levomycetin and cortisone on the immunological processes.
Zh. mikrobiol. (1964) 8: 59-64.
(From the Leningrad S. M. Kirov Institute for the Advanced Training of Physicians.)

The authors established that

- (a) The simultaneous administration of cortisone and levomycetin to normal rabbits lowered the phagocytic activity of the leucocytes and the agglutinin titer;
- (b) Levomycetin and cortisone, administered to rabbits during the process of immunization against typhoid, before such immunizations or after their completion lowered the production of agglutinins and the phagocytic activity of the leucocytes;
- (c) Such administrations of levomycetin and cortisone likewise lowered the level of the preventive and protective properties of the rabbit serum.

The authors added that the causes of this inhibitory action of cortisone and levomycetin were still not clear.

87. Vershilova, P. A. and Ostrovskaya, N. N., Observations on the classification of the brucellae and the methods of their differentiation.
Zh. mikrobiol. (1964) 7: 5-10.
(From the Gamaleia IEM, AMS, USSR.)

This paper which deals with the system of classification of the brucellae adopted at the meeting of the Subcommittee on Taxonomy of the International Committee of Bacteriological Nomenclature held in August 1962 does not lend itself to the purposes of a brief review. An adequate list of Soviet and foreign references is appended.

Selected Abstracts-III/99

88. Balandin, G. A. et al., Type determination of the brucellae isolated in the south-west of the Russian Federation. Zh. mikrobiol. (1964) 7: 11-15.
(From the Rostov-on-Don SR Anti-Plague Institute and the Veterinary-Bacteriological Laboratory of the Rostov Oblast.)

As described in this article the details of which cannot be briefly reviewed, the properties of the local brucellosis strains did not markedly differ from those of the corresponding reference strains.

89. Avakian, A. A. et al., Materials concerning the etiology of hemorrhagic fever with a renal syndrome. Zh. mikrobiol. (1964) 7:129-134.
(From the Gamaleia IEM, AMS, USSR.)

As can be gathered from this article, the authors were able to isolate from the blood of persons suffering from hemorrhagic fever with a renal syndrome as well as from the kidney blood of voles (Clethrionomys glareolus) which formed the reservoir of the infection, a filtrable virus. The sera of 10 out of the 11 patients examined exerted a neutralizing action on this virus while with one exception the sera of 18 healthy persons failed to do so. The isolated agent showed a low cytopathogenic activity in primary tissue cultures. It was inactivated by exposure to 70°C for 30 minutes but remained viable for not less than 1 1/2 years if kept at -20°C.

90. IAvrumov, V. A. and Kobzar', M. S., An ornithosis outbreak in Kaluga. Zh. mikrobiol. (1964) 7:143-146.
(From the Public Health Department of the Kaluga Oblast.)

As the authors summarized, for the first time an ornithosis outbreak, which took place in 1962 in the local chicken-packing factory, was observed in the Kaluga Oblast. Out of 49 workers of this plant 33 showed clinical and serological evidence of the infection. Both persons working in the factory for a long time and newcomers became affected. The maximal incubation period was 15-17 days.

The source of the infection could not be traced.

Selected Abstracts-III/100

91. Perekopskaia, T. I., Clinical characterization of a brucellosis outbreak of the goat-sheep type. Author's Review. Zh. mikrobiol. (1964) 7:146-147.
(From the Cheliabinsk MI.)

The outbreak briefly described in this note, which took place in a sovkhos (communal farm) of the Cheliabinsk Oblast, involved 68 persons. Moreover, serological evidence of the infection was found in 205 out of 677 persons examined in this respect. Since none of these reactors gave a history of a manifest attack, they suffered apparently from a primarily latent form of the infection.

92. Selivanova, E. I. et al., Evaluation of the immunological response in persons cutaneously vaccinated against brucellosis. Authors' Review. Zh. mikrobiol. (1964) 7:147-148.
(From the Orenburg MI and the Sanitary-Epidemiological Station of the Orenburg Oblast.)

As stated in the concluding sentences of this note, in which observations on 618 persons are recorded,

"cutaneous vaccination against brucellosis leads in the majority of the inoculated to the appearance of immunological reactions. Most stable among these are the phagocytic activity of the leucocytes and allergic phenomena. Maximal immunological reactions were caused by re-vaccinations made at an interval of 11-12 months after the initial inoculation."

93. Borodin, IU. P., Passive hemagglutination reaction for the observation of antibodies against penicillin. Methods and mechanism of the reaction. Sovetskaia meditsina (1964) 8:118-121.
(From the Allergy Laboratory of the USSR Academy of Medical Sciences and the Clinical Hospital.)

The findings of the author confirmed the observations of western workers that it is possible to demonstrate antibodies against penicillin with the aid of hemagglutination tests.